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Conceptual Paper

Post-Covid Tourisms: Virtual Tourisms As The New Travel Trends

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Abstract: This conceptual paper discussed about the COVID-19 pandemic caused many industries to face their downfall, and one of the industries is the tourism industry. As a corollary, a new type of tourism, virtual tourism, is required to promote and restore the tourist sector to its former glory while not dismissing the need for social distancing. Through virtual tourism, people no longer need to travel to a particular tourist destination to experience tourism, but they can now stay at their home and escape to another destination virtually. Aside from giving tourists another level of tourism pleasure, virtual tourism also contributes a lot to the industries such as heritage preservation, tourism marketing, tourism planning and as an opportunity for disabled person to experience tourism. Even though virtual reality technology does not provide the users with enough authentic experience due to the inability to touch the object in the virtual environment, but it can be considered as a good start to advertise virtual tourism as an alternative to conventional tourism especially during the pandemic era where every movement is limited.

Keywords: virtual tourism; virtual reality; tourism; heritage; e-Tourism

Introduction

The outbreak of the COVID-19 pandemic had a significant influence on the worldwide economy, causing many companies to close and immediately affecting people's socioeconomic realities (Mishra et al. 2020; Siddik 2020). The epidemic has touched not just general human problems, but has also resulted in serious financial and political crises in infected countries (Mishra et al. 2020). COVID-19 has been identified as a key source of inequality and social advancement deficiency, in addition to being a global hazard (Huang et al. 2020). As a result, numerous nations, including Singapore, Hong Kong, Malaysia, and China, have used and continue to implement measures such as lockdowns, manufacturing closures, and social isolation in order to flatten the contagion curve (Wang et al. 2020; Huang et al. 2020; Siddik 2020; Anderson et al. 2020; Prem et al. 2020; Lun et al. 2020). While the restrictions are effective in decreasing the COVID-19 epidemic, they also impede economic activity by restricting people movement and corporate procedures (Eichenbaum et al. 2020). The daily worker count has reduced as a result of a considerable increase in the number of infective cases, causing a severe impact in industrial sectors (Mishra et al. 2020). The economies of many nations are currently dealing with rising joblessness as a result of a loss of production and higher consumption for the healing and

rejuvenation of the COVID-19 fatalities and their families (Wang et al. 2020). The tourism industry is one of many that has suffered as a result of COVID-19 (Mishra et al. 2020).

To solve the difficulties confronting the tourism industry, virtual experiences are being developed that mirror the realism of tourism places and attractions without forcing travellers to leave their current location (Martins et al. 2017). This is due to the fact that the tourist industry's production may improve as a result of the usage of new technologies (Chiao et al. 2018). The use of technology also increased an organization's efficiency by boosting its comprehension, appeal, and accessibility to visitors (Hjalager 2010; Nielsen and Liburd 2008). Technology innovation has brought unprecedented transformation and opportunities to the tourism sector, while also serving as a vehicle to satisfy the rising need for great tourist experiences (Buhalis & Law 2008; Molz 2012; Rosman & Stuhura 2013). The development, investment, emergence, and usage of Information and Communication Technologies (ICTs) have contributed to the rise of tourist activities, allowing nations to enhance their ability to interact with the outside world and launch strategies to promote, market, and provide new ideas such as virtual recreation and direct and indirect presence in video games, music, museums, parks, squares, and so on, suggesting a rising tendency toward virtualization (Acosta 2017).

Due to the proliferation of the internet industry, the tourism industry structure has also changed, affecting how tourism destinations are perceived and consumed (Doolin Burgess and Cooper 2002; Buhalis, 2004; Sigala 2005; Chathoth 2006; Buhalis & Zoge 2007; Govers, Go & Kumar 2007; Chalkiti & Sigala 2008; Kim, Lee & Law 2008). Tourists may now use the Internet to get travel information since a plethora of tourist firms and organisations have established themselves online (Buhalis & Law 2008; Grnflaten 2009). The rise of information and communication technologies (ICTs) has also had a significant influence on tourism, from consumer demand to site administration, leading e-Tourism to expand swiftly (Buhalis 2003; Buhalis & Law 2008; Egger & Buhalis 2008). Therefore, this conceptual paper discussed about the changes of tourism trend through virtual tourism.

Methodology

This study use the document analysis design to explore and discuss virtual reality from a tourism perspective. Document analysis is an effective and efficient method of data collection since documents are controllable and practical resources. Documents may be read and reviewed several times, and their contents can be archived during the research procedure.

Discussion of The Concepts

1. Virtual Reality as the World-Changing Technologies

VR is a type of reality emulation, a three-dimensional, computer-generated world with which a person may interact or explore (Qadri et al. 2019). VR fosters innovation in a wide range of industries, including business, science, and entertainment, and it provides a platform for interactive experiences that may benefit both operators and tourists (Racz & Zilizi 2016; Qadri et al. 2019). According to Kim et al. (2020), one of the causes of the tourism field's development is virtual reality's emerging technology. It provides an interactive computer-generated medium through which people may create engaging experiences of actual and fictitious circumstances (Hobson & Williams 1995). Due to the commercialization of online virtual environments, tourists may participate as active participants with VR applications, which allow them to experience items and locations from the comfort of their own homes (Bogicevic 2019).

As in 21st Century, VR is now regarded as the most world-changing technologies (Nayyar et al. 2018). VR attempts to bring users to a virtual environment and allow them to interact with the environment as if it were real (Martins et al. 2017). Ever since the emergence of VR-type technologies in the 1960s, the VR system's ability to offer high-quality sensory data has greatly increased (Burdea & Coiffet 2003; Gutie' rrez et al. 2008). Meanwhile, today, the VR system had been modernized, upgraded, and already quite sophisticated (Guttentag 2010). In past decades, integrated development focused on immersive 3D graphics, user interface and visual emulation has been at the early stage of VR (Zyda 2005). According to Guttentag (2010), VR is the use of a computer-generated 3D world termed a virtual environment in which users may explore and perhaps interact, resulting in real-time simulation of one or more of the individual's five senses. In other words, VR is the unification of Immersion, Interaction, and Imagination, commonly known as the I3 factors (Burdea & Coiffet, 1994), which includes elements of interactivity, spatiality, and real-time (Whyte 2002). It also allows users to immerse themselves in a comparable setting, increasing potential for "performative, immersive, collaborative, and game-based learning." (Resta & Shonfeld 2013).

VR systems usually function by monitoring the motion of hand-held items or a user's head or limbs using various types of input devices such as a mouse, joystick, or fixed mechanical arm with a visual display at one end (Burdea & Coiffet 2003; Foxlin 2002; Guttentag 2010). Many complex and sophisticated equipment, such as interactive gloves, speech recognition software, and wands like the one seen in the Wii video game system, are also employed (Guttentag 2010). Because of advancements in technology such as drones, 3D printing, robots, and AR-based apps, virtual experiences may now be recorded and built (Kidd 2015; Guttentag 2010). They may employ a single tracker point that is positioned in a specific area, such as on top of the user's head, or they may use several tracker points that are located on main joints or throughout the body (Foxlin 2002; Burdea & Coiffet 2003; Vince 2004; Gutie' rrez et al. 2008).

VR draws people's interest, and technology has been implemented in medicine, manufacturing, education, video games, tourism, and other industries (Martin 2017). There are several applications for VR applications, particularly in the tourism industry, and the consequences of VR for the tourism industry are significant (Guttentag 2010). The VR system also offered various immersion levels, which may influence an individual's feelings of 'presence,' making VR one of the most suitable tools for individual/ tourists to experience tourism without going to places and just by staying at home (Ban'os et al. 2004). With VR applications, tourists are "able to see, hear and touch real-life images which make them believe they are actually experiencing the real thing" (Williams and Hobson 1995). This demonstrates that virtual reality tourism has the potential to provide value in marketing, education, accessibility, historical preservation, and entertainment (Guttentag 2010). Although most online communities have yet to fully adopt VR, the popularity of virtual worlds may foreshadow the acceptance of such technology, making virtual worlds an important component in the tourism industry (Bates et al. 2008).

2. Virtual Reality in the Tourism Industries

Tourists might get more extensive and sensory information about a destination by using virtual reality (Guttentag 2010). Virtual models may be utilised to benefit the environment, and an e-tourism experience would greatly benefit tourists involved in tourism (Qadri et al. 2019). VR can help revive tourism industries through an interactive virtual environment called Second Life (SL) because it offered assistance in locating the best SL destinations since virtual travel agents provided services and guides on automated tours (Guttentag 2010).

SL might also be viewed as a learning platform for real-world simulation, social engagement, and collaborative learning (Chiao et al. 2018). Individuals were represented as avatars in SL and are allowed to explore the application's virtual environment where services are charged and generate millions of dollars in revenue each year without tourists' corporeal mobility (Mitchell 2011). For instance, in virtual worlds created by the application's virtual environment, an individual may visit Ibiza, Washington, or exploring a virtual rainforest (Book 2003).

People may now experience virtual tours of cities and tourist destinations from anywhere in the globe thanks to the availability of several low-cost VR viewers and a wealth of tourism-related VR material (Tussyadiah et al. 2018). Most of the applications also included a virtual recreation of sites in SL, such as Dresden's Old Masters Picture Gallery, which was also the first museum to completely recreate itself in virtual reality. There is also a 3D virtual model, Rome Reborn, which comprises hundreds of structures and dozens of building interiors and was publicly disclosed in 2008 via Google Earth. This virtual model of ancient Rome functioned as an educational illustration and is also used in tourism applications. It took tourists through re-created sceneries of several old city regions using an avatar (Rome Reborn Brochure 2008; Brown 2008; Owen 2008). Other examples of heritage sites that have been rendered as 3D models and enable virtual tourism include numerous Terra Cotta Warrior statues from China, the Hawara pyramid complex from ancient Egypt, frescoes from Pompeii's House of the Vettii, the Dutch castle of Huys Hengelo, the Hagia Sophia Mosque of Istanbul, a Byzantine crypt in Italy, Michelangelo's statues of David, the Florentine Pieta', over 150 sculptures from the Parthenon, the Great Buddha carving from Afghanistan, assorted Angkor temples in Cambodia, a 19th century aboriginal chief house in Canada, a chapel in Ottawa,various castles in Northern Italy, a 14th century Bosnian king's monumental gravestone, and the Sarajevo City Hall (Callieri et al. 2004; Shiode & Grajetzki 2000; Devlin & Chalmers 2001; Reidsma, Kragtwijk, & Nijholt 2001; El-Hakim et al. 2007; Bernardini et al. 2002; Beraldin et al. 2002; Kenderdine 2004; El-Hakim et al. 2006; Zheng & Zhang 1999; Foni, Papagiannakis, & Magnenat-Thalmann 2002; Gru¨n, Remondino, & Zhang 2004; Stumpfel et al. 2003; Rizvic' et al. 2008). At the World Heritage-listed Seokgulam Grotto hermitage and monastery complex, the Korean government also used a virtual reality (VR) tourism experience as a conservation management tool (Kim & Hall 2019). The virtual destinations are also evolving into attraction now, thanks to the advancement of VR technology (Bec et al. 2021).

VR tourism is a virtual representation of a real tourist encounter, destination, or attraction that is meant as a prelude to returning or expanding the earlier client encounters the tourist in order to get a more in-depth understanding of the desired location, whether for enjoyment, diversion, or professional reasons (Kim & Hall 2019; Putro 2015). Virtual reality technologies have had a significant impact on virtual tourism, enhancing visitors' experiences while also providing multiple applications to tourism professionals and researchers in terms of tourism policy planning, tourism marketing, tourist attractions, entertainment, and heritage tourism preservation (Kim & Hall 2019; Kim et al. 2020; Tussyadiah et al. 2018; Guttentag 2010). VR plays an important part in tourist experience and behaviour, such as interplanetary travels, dream world visits, sports activities, and universal theme parks (Dewailly 1999).

Tourists could gain varieties of benefits from the implementation of VR in tourism industries (Guttentag 2010). For example, it would improve tourism experiences, make it less expensive for visitors to travel since it offers reduced prices, no queues, no transit difficulties, no bureaucracy or visas, better safety, no language challenges, no weather worries, and an overall assured experience (Hobson & Williams 1995;

Dewailly 1999; Moorhouse, Dieck, & Jung 2018; Bonetti, Warnaby, & Quinn 2018). Furthermore, VR replacements would not necessarily entail remote access to a virtual site; hence, it may be utilised as a replacement for a particularly susceptible element of the site (Guttentag 2010).

Tourism marketing

Marketing, in current technological and communicational revolution, plays a crucial part in tourism promotion, being a method of finding things that attract visitors, products and services supplied that thrill them, resulting in a big effect on specific types of tourist experiences, such as travel planning (Kim & Fesenmaier 2008; Acosta 2017). According to Gunn (1972), considering tourists desire a perfect visual picture of the travel destination, the initial image generation phase prior to the trip is one of the most essential phases in visitors' destination choosing processes. (Adachi et al. 2020). Experiential marketing on the internet may be a powerful technique for increasing real-world brand awareness and purchase decisions (Huang 2015). In terms of virtual tourism, it appears that VR is becoming a more major tool for marketing/promotional reasons, as virtual experiences give more effective advertising than brochures, comprehensive views of hotels and locations, and psychological comfort to persons suffering from travel anxiety (Williams and Hobson 1995; Cho, Wang, & Fesenmaier 2002; Wan et al. 2007; Lee & Oh 2007; Hyun, Lee, & Hu 2009; Huang et al. 2016; Moorhouse et al. 2018; Gibson & O'Rawe 2018; Lo & Cheng 2020). Numerous tourist companies have begun to integrate virtual reality tools into their marketing and promotion campaigns (Lo & Cheng 2020). The VR system's effectiveness as a marketing tool for tourism will only be achievable if it is closer to reality (Martins et al. 2017). Furthermore, if a prospective tourist considers the VR is beneficial, the visitor is more likely to plan a visit to a place shown in VR tourism activities (Kim et al. 2018). The experiences made online are subsequently transferred offline' by the use of VR application (Haenlein & Kaplan 2009). Huang et al. (2013, 2016) show that searching out more information about a location, having an interest in visiting the location, attempting to visit the region, and being prepared to recommend the site visited in VR for VR tourism all contribute to the motivation to behave in a specific way. Dewailly (1999) also acknowledged that VR seemed to enhance rather than hinder tourism.

As Covid-19 had makes it hard for the business owners to market their tourism products, VR usage makes things easier and helps reach more target market while being a unique platform to convey information between tourists (Guttentag 2010). This is consistent with the findings of Buhalis and Law (2008), who stated that online travel communities that allow tourists to exchange information, whether through forums, chat services, or other tools, are gradually becoming extremely influential in tourism because "consumers increasingly trust their peers, rather than marketing messages." In the tourism industry, VR has been used as a commercial method to engage with tourists by offering destination information (Huang et al. 2013) and online shopping retailers such as Alibaba (Kim et al. 2018). As a result, tourist providers will gain from raising brand recognition in such areas, as well as assessing and responding to customer feedback on their offerings (Buhalis & Law 2008). In virtual environments, as the degree of position attachment (i.e., connection to the virtual space) grows, people are more likely to repeat these areas for additional encounters due to these locations' interactional ability, which impacts their decision to return (Goel et al. 2013).

Tourism planning

VR is suited for the depiction of spatial contexts and serves as an excellent instrument in the creation of tourist strategy; consequently, it is used for urban, environmental, and architectural planning (Disztinger et al. 2017;

Heldal 2007; Vince 2004; Cheong 1995). Besides, through VR, tourism planner may analyse and considers possible development from an unlimited point of view instead of just a bird's eye view (Gutentag 2020; Cheong 1995; Sussmann & Vanhegan, 2000). VR may potentially be employed in tourism in a variety of ways due to the technology's unique testing capabilities (Cheong 1995; Sussmann & Vanhegan, 2000). For example, it may market and sell a tourism site by offering prospective travellers with a wealth of sensory information (Cheong, 1995; Sussmann & Vanhegan, 2000; Williams & Hobson 1995; Guttentag 2010). Furthermore, virtual reality (VR) can provide rich data to potential visitors looking for destination information, helping them to make better-informed choices, establish more realistic expectations, and have a more pleasurable vacation (Hobson & Williams 1995; Cheong 1995). VR utilisation in the tourist business is increasing as VR technologies progress and modernise (Guttentag 2010). Not to mention that there are already several instant VR applications being deployed in the tourism industry. This demonstrates the significant impact of VR on the tourist sector and the numerous opportunities it provides to both tourism researchers and professionals. Commercial VR operators who provide visitors with high levels of pleasure, satisfaction, and fulfilment via the usage of virtual tourism programmes may encourage tourists to continue using VR tourism and may persuade tourists to visit the place depicted in VR content (Kim et al. 2020). VR technology has increased the perceived authenticity of heritage sites, resulting in more visitors visiting the locations (Dueholm & Smed 2014). This is due to the fact that increased perceived authenticity leads to a higher inclination to engage in VR tourism (Mura et al. 2017; Dueholm & Smed 2014; Yung et al. 2020).

Heritage preservation

In terms of heritage tourism, VR has done more than only preserve heritage sites by tackling the erosion of natural attractions, landmarks, infrastructure, artefacts, and surroundings (Bec et al. 2021; Guttentag 2010; Williams & Hobson 1995). By giving an alternate means of access to vulnerable places, VR also helps to make heritage sites or artefacts from all around the globe available to be visited virtually and digitised as 3D models (Guttentag 2010). For a site or heritage object that has degraded due to impacts such as erosion (natural disasters or man doings), a VR model can provide exact information on its prior form, which can be used to monitor degradation and provide a blueprint for restoration, or it can facilitate restorations by monitoring restorative efforts or visualising the consequences of proposed restorative procedures (Paquet & Viktor 2005; Cignoni & Scopigno, 2008). Since heritage sites are threatened due to the impacts of visitor encroachment (Cheong 1995), thus, virtual visits may decrease site degradation while offering a realistic experience, provide visitors with access to simulation rather than putting the original at danger of wear and deterioration (Paquet & Viktor 2005; Arnold 2005; Hobson & Williams 1995). For instance, with the VR technology, a destroyed Buddha figures in Afghanistan were reconstructed using a laser scan documentation allowing tourists to interact with damaged Buddha images and other no longer extant parts of the local location (Toubekis et al. 2009).

The authenticity of experience

Although Virtual tours seem such an excellent initiative to kickstart back the tourism industries during the post-covid era, there are still flaws that have to be taken care of. Without a doubt, the SL experience comprises social interaction, entertainment, and business; nevertheless, not all Virtual Environments are built for such objectives (Mennecke et al. 2007). Sussmann and Vanhegan (2000) discovered that, not only are virtual va-

cations unable to substitute genuine vacation experiences, but virtual tourism actually has the reverse preservationist influence, increasing users' desire and demand to visit the real location owing to the authenticity of the experience (Mura et al. 2017; Buhalis 2003; Dewailly 1999; Refsland et al. 2000).

Gilmore and Pine (2007) describe authenticity as a new consumer sensibility involving views of the degree to which events, services, or goods are innovative, real, original, extraordinary, or distinctive. The experience's authenticity explains why VR tourists use tourism products or services (Chung et al. 2018; Kim et al. 2017; Kim et al. 2019; Meng & Choi 2016). Authenticity of experience influences consumer behaviour among mobile information technology users and slow life festival goers (Kim et al. 2017; Chung et al. 2018). Authenticity is also important in describing the usage of VR technology in tourist settings since it may alter the tourism experiences in VR tourism activities (Guttentag 2010; Dueholm & Smed 2014; Mura et al. 2017; Kim & Hall, 2019; Yung et al. 2020). According to Mura et al. (2017), virtual tourism is only viewed as 50% authentic, and visitors would still choose corporeal tourism over virtual tourism. For instance, artistic interpretation does not fully reflect the historical accuracy, and it may not give a clear idea or interpretations to young virtual visitors about what had actually happens in the pasts (Refsland et al. 2000; Jacobson & Holden, 2005). The individual's perception of authenticity and the motivation to travel are also some of the factors influencing the acceptance of virtual tourism (Guttentag 2010).

Furthermore, many VR recreations, such as locations rebuilt in SL, are not supervised by professionals, and viewers may be deceived by inaccuracies even if they are suspicious of the reality of such replicas (Guttentag 2010). Because of low technological quality, tourism experiences including VR tourism activities may be seen as unauthentic (Kim et al. 2018). A more genuine setting results in a greater level of immersion and entertainment value for video game customers in the virtual sense (Pietschmann, Valtin, & Ohler 2012). Authentic information gained through the use of any particular application boosts the behavioural intention of technology users (Dueholm & Smed, 2014; Guttentag 2010; Kim et al. 2017; Mura et al. 2017; Yung et al. 2020). The authenticity of the experience influences consumer behaviour among travel consumers who use mobile information technology (Kim et al. 2017; Chung et al. 2018). According to Mura et al. (2017), not all visitors regarded virtual tourism as real since it does not allow people to have complete sensory stimulation in the virtual world owing to the inability of 'feeling', 'smelling,' and 'tasting.' Acceptance of the VR tourism alternative is also impacted by the individual's impression of authenticity as well as travel motives (Guttentag 2010).

In some contexts, VR usage in tourism has been shown to build subjective well-being feelings (Kim et al. 2020). If the VR offers enough realistic experiences, customers consider VR experiences as alternatives for trips or corporeal tourism (Guttentag 2010). Authentic experience with mobile information technology, in particular, enhances users' intentions to reuse mobile technologies among travellers (Kim et al. 2017). Chiu et al. (2013), for instance, found that users experience good subjective well-being as identity and pleasure with using social media satisfy the needs of users. Variables related to authenticities, such as awareness, external information quest, and authenticity interpretation, affect the actions of slow travel customers (Meng and Choi 2016).

Intellectual property

Apart from that, the problem of intellectual property may arise as a result of the public's ability to recreate tourism locations in VR and perhaps benefit from these re-creations (Guttentag 2010). This is widespread,

particularly when authorities seek to restrict cultural heritage sites through intellectual property laws, highlighting potential issues with reproducing such places in VR. Some Mediterranean nations have claimed ownership of photos of their magnificent sites by prohibiting professional photographers who do not have a permit from photographing them and alleging that various characteristics of the location are protected by copyright law (Addison 2007). Other nations have various methods of conserving their monuments, leading Virtual Tourism to be ineffective. For example, the Indian High Commission expressed opposition to the construction of a Taj Mahal replica in Bangladesh, threatening to sue for copyright infringement if the project proceeded (Blakely 2008). The city of Chicago has also enacted the same rule, which prohibits professional photographers from photographing the city's Millennium Area since the park is protected by copyright law. As a result, not all sites, especially historical or aesthetic tourist destinations, will be made available in VR applications.

Language barriers

Language barriers are also one of the factors that caused virtual tourism not to be fully applicable because the developer's application is focusing solely on the specific region or platform and displaying information in a particular language (Katkuri et al. 2019). Therefore, VR application developer must provide and create an application that can operate on all devices, view the information in several languages and provide users with feedback based on the location or the image (Katkuri et al. 2019).

3. Varieties of Virtual Tourism

Virtual reality (VR) has made tourism simpler for people, particularly during the Covid-19 epidemic era, by providing a number of benefits, and it should be widely accepted in the tourism business so that visitors may create and duplicate their own tourist destinations (Qadri et al. 2019; Mura et al. 2016; Hu, Cao, & Shi 2012). In terms of tourism, Qadri et al. (2019) suggested that adding VR to tourism through sensory input of sight, sound, and even touch can enhance the tourist business. As technology evolve, the tourist sector seeks to incorporate them in order to improve customer experience (Moro 2019). From a humanistic standpoint, VR may fulfil desires of risk-free travel, yet from an environmental standpoint, it may minimise natural environment damage and pollution hazards by avoiding excessive tourism (Guttentag 2010; Chiao et al. 2018). Combining virtual and non-virtual tourism may result in more sustainable forms of mass tourism, as going without the body may lessen the effects of bodily presence (Dewailly 1999). Virtual tourism also provides a possibility for interactive experiences that might benefit both operators and visitors while delivering advantages and popularity to an area and, as a result, increasing the location's worth (Potter et al. 2016; Qadri et al. 2019).

People may now experience virtual tours of cities and tourist attractions from anywhere in the world, owing to the availability of many low-cost VR viewers and a variety of tourism-related VR information (Tussyadiah et al. 2018). People may go anywhere utilising VR applications and by wearing VR equipment through the usage of VR tourism (Stanley 2017; Tussyadiah et al. 2018) without having to worry about language challenges, weather, expenses, or a travel budget (Dewailly 1999; Hobson & Williams 1995). Although localities that rely on visitors' money for survival would suffer if physical travel declines in popularity, it is also true that tourists do not need to be there to spend money (Mura et al. 2017). Thus, the communities should prepare themselves for a new era of e-Tourism and revolutionize virtual tourism. To encourage virtual tourism even further, designers of virtual tourism sites can provide a variety of activities with which visitors can collaborate to boost their sense of autonomy. (Füller, Mühlbacher, & Matzler 2009; Füller, Hutter, & Faullant 2011). To enhance user attachment, VR application developers could create more VR websites and gadgets to

deliver delightful experiences of VR tourism activities, which boosts potential tourists' willingness to come (Kim et al. 2018).

Furthermore, in order to deliver a more enjoyable experience and trip goals, virtual tourism developers must create an effective and stable platform for conveying tourist travel information (Huang et al. 2016; Kaplanidou & Vogt, 2006). VR tourism practitioners must also contribute to the authenticity of their VR programmes by building VR tourism activities with components of information, social relationships, entertaining features, and sophisticated techniques such as vivid audio, visual, and haptics to better excite tourists. Simultaneously, it will contribute to their psychological well-being. 2020 (Kim et al.). VR practitioners must be vigilant and ensure that the VR programme is well-managed and suitable with the users' degree of comfort with the technology, so that first-time users do not quit the application in frustration owing to its complexity. In other words, a straightforward, accessible, helpful, and real experience will be psychologically pleasant to potential VR tourists while also having a significant influence on the tourism sector as a result of development in the nearby vicinity (Katkuri et al. 2019; Kim et al. 2020).

Although virtual forms of tourism provide complex sensorial experiences and let tourists experienced the authenticity. However, some travellers still see virtual travel as less authentic and prefer corporeal travel over virtual forms of tourism, because tourism entails more than merely encountering people and touring items at the location (Mura et al. 2017). The nature of authentic experiences cannot be considered objective since visitors' perceptions of authenticity are the product of negotiated interactions between tourists and toured objects (Wang 2007). This is due to the fact that many visitors like meeting and exchanging with locals as well as immersing themselves in their culture in order to have a genuine experience (Rauscher et al. 2020). Mura et al. (2016) also claimed that tourism is an experience that elicits emotions both before and after arriving at the destination, and it will not be able to replace bodily patterns of movement; rather, it will only supplement them. Even so, virtual tourism has a lot to offer for individuals who are challenged but wish to travel because visiting with the body can be more comfortable and less stressful, especially because many cultural and nature locations are not easily accessible (Mura et al. 2016; Hobson &Williams 1995). Disabled people will also be able to visit sites that are otherwise inaccessible to them (Racz & Zilizi 2016). This highlights how virtual tourism has the potential to make travel more accessible to everybody (Guttentag 2010; Williams & Hobson 1995). As a result, in the future, VR technology must be improved to allow visitors to virtually touch or feel delicate touring things, enhancing tourists' feelings of authenticity while also protecting sensitive tourist sites (Mura et al. 2017). Because tourism is a primary source of revenue for any country, replacing corporeal tourism with virtual tourism in the Covid-19 age would generate additional revenue, have a substantial influence on the economy, and help the government achieve the Sustainable Development Goal (Radde 2017; Tromp 2017; Qadri et al. 2019).

Conclusion

In conclusion, virtual reality can be used as an alternative to help boosting the tourism industry without the hassle for physically be in the place or destination. Thanks to the availability of many low-cost VR viewers and a variety of tourism-related VR information, people may now experience virtual tours of cities and tourist attractions from anywhere on the planet. VR has simplified travel for people, especially during the Covid-19 pandemic age, by giving a variety of benefits, and it should be widely embraced in the tourism industry so that tourists may construct and recreate their own tourist locations. In the tourism setting, VR technology has been suggested as a tool to help elevate experiences. These simulated environments have an impact on tourist

trip planning and the tourism sector, while also assisting tourism marketers in producing memorable experiences that provide perception, consumption, meaning, and brand loyalty. In today's era where e-Tourism and virtual tours are becoming a phenomenon, VR technology has been advocated as a means of improving experiences, increase tourism accessibility, and contribute to cultural preservation. VR is also connected with increased visitor attention, interest, desire, and activity toward locations, as well as increased enjoyment, which results in increased affinity and preference toward a destination. VR developments are eliminating the gap barrier to the capacity tourists need to obtain information and awareness of a destination before buying choices and visiting, transforming how individuals travel and experience a location.

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References

Acosta, A.F., Quevedo, W. X., Andaluz, V.H., Gallardo, C., Santaa, J., Castro, J.C., Mauricio, Q., & Cordova, V.H. (2017). Tourism Marketing through Virtual Environment Experience. *ICETC 2017: Proceedings of the 2017 9th International Conference on Education Technology and Computer*s: 262–267. https://doi.org/10.1145/3175536.3176651

Adachi, R., Cramer, E.M., & Song, H. (2020). Using virtual reality for tourism marketing: A mediating role of self-presence. *The Social Science Journal.* DOI: 10.1080/03623319.2020.1727245

Addison, A. C. (2007). The vanishing virtual: safeguarding heritage's endangered digital record. In Y. E. Kalay, T. Kvan, and J. Affleck (Eds.), *New heritage: New media and cultural heritage.* New York: Routledge.

Anderson, R.M., Heesterbeek, H., Klinkenberg, D., & Hollingsworth, T.D. (2020). How will country-based mitigation measures influence the course of the COVID-19 epidemic? *Lancet 395*(10228): 931–934.

Arnold, D. (2005). Virtual tourism: a niche in cultural heritage. In M. Novelli (Ed.), *Niche tourism: Contemporary issues, trends, and cases.* New York: Elsevier.

Ashe, D.E., Eardley, W.A., Fletcher, B.D. (2018). *e-Tourism and Culture through Virtual Art Galleries A pilot study of the usability of an interface.* 2018 4th IEEE International Conference on Information Management.

Barnes, Stuart. (2016). *Understanding Virtual Reality in Marketing:* Nature, Implications and Potential

Bates, R., Istance, H. O., & Vickers, S. (2008). Gaze interaction with virtual on-line communities: levelling the playing field for disabled users. *Universal Access in the Information Society 9*(3): 261—272.

Bec, A., Moyle, B., Schaffer, V., & Timms, K. (2021). Virtual reality and mixed reality for second chance tourism. *Tourism Management* 83: 1-5.

Beraldin, J.-A., Picard, M., El-Hakim, S. F., Godin, G., Valzano, V., & Bandiera, A. (2002). Virtualizing a Byzantine crypt by combining high-resolution textures with laser scanner 3D data. *Proceedings of the 8th international conference on virtual systems and multimedia,* Gyeongju, Korea, 25–27 September.

Bernardini, F., Rushmeier, H., Martin, I. M., Mittleman, J., & Taubin, G. (2002). Building a digital model of Michelangelo's Florentine Pieta`. *IEEE Computer Graphics and Applications, 22*(1): 59–67.

Blakely, R. (2008). *No love lost over Bangladesh's copycat version of the Taj Mahal*. Times Online.

Bogicevic, V., Seo, S., Kandampully, J.A., Liu, S.Q., & Rudd, N.A. (2019). Virtual reality presence as a preamble of tourism experience: The role of mental imagery. *Tourism Management 74*: 55-64.

Bonetti, F., Warnaby, G., & Quinn, L. (2018). Augmented reality and virtual reality in physical and online retailing: A review, synthesis and research agenda. *Progress in IS.* Springer, Cha,.

Book, B. (2003). Traveling through cyberspace: tourism and photography in virtual worlds. *Tourism and photography: Still visions - changing lives conference*, Sheffield, UK, 20–23 July

Brown, S. (2008). *3D gives taste oflife and combatin ancient Rome.* Reuters UK. http://uk.reuters.com/article/technologyNews/idUKTRE4A588G20081106. Accessed 21.04.09.

Buhalis, D. (2003). *eTourism: Information technology for strategic tourism management*. Toronto: Prentice Hall.

Buhalis, D. (2004). Airlines: strategic and tactical use of ICTs in the airline industry. *Information and Management 41*(7): 805–825.

Buhalis, D. & Zoge, M. (2007). The strategic impact of the Internet on the tourism industry. *In: Information and Communication Technologies in Tourism.* Springer Wien: 481–492.

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.

Burdea, G.C., & Coiffet, P. (1994). *Virtual reality technology.* London: Wiley-Inderscience.

Burdea, G.C., & Coiffet, P. (2003). *Virtual reality technology* (2nd ed.). Hoboken, NJ: Wiley-Interscience.

Callieri, M., Cignoni, P., Ganovelli, F., Impoco, G., Montani, C., & Pingi, P. (2004). Visualization and 3D data processing in David's restoration. *IEEE Computer Graphics and Applications*, *24*(2): 16–21.

Chalkiti K, & Sigala M. (2008). Information sharing and knowledge creation in online forums: the case of the Greek online forum 'DIALOGOI'. *Current Issues in Tourism 11*(5): 381–406.

Chathoth P. (2006). The impact of information technology on hotel operations, service management and transaction costs: a conceptual framework for full-service hotel firms. *International Journal of Hospitality Management 26*(2): 395–408.

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

Chiao, M., Chen, Y.L., & Huang, W.H. (2018). Examining the usability of an online virtual tour-guiding platform for cultural tourism education. *Journal of Hospitality, Leisure, Sport and Tourism Education 23*: 29–38.

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

Chung, J.Y., Kim, J.S., Lee, C.K., Kim, M.J., (2018). Slow-food-seeking behaviour, authentic experience, and perceived slow value of a slow-life festival. *Current Issues in Tourism 21*(2): 123–127.

Cignoni, P., & Scopigno, R. (2008). Sampled 3D models for CH applications: a viable and enabling new medium or just a technological exercise? *ACM Journal on Computing and Cultural Heritage*, *1*(1): 2–23.

Devlin, K., & Chalmers, A. (2001). Realistic visualisation of the Pompeii frescoes. *In Proceedings of AFIGRAPH* (pp. 43–48), Cape Town, South Africa.

Dewailly, J.-M. (1999). Sustainable tourist space: From reality to virtual reality? *Tourism Geographies, 1*(1): 41-55.

Disztinger, P., Schlögl, S., & Groth A. (2017). "Technology Acceptance of Virtual Reality for Travel Planning". *Information and Communication Technologies in Tourism*: 255-268.

Doolin B, Burgess L, Cooper J. (2002). Evaluating the use of the Web for tourism marketing: a case study from New Zealand. *Tourism Management 23*(5): 557–561.

Dueholm, J. & Smed. KM. (2014) Heritage authenticities – a case study of authenticity perceptions at a Danish heritage site. *Journal of Heritage Tourism 9*(4): 285-298, DOI: 10.1080/1743873X.2014.905582.

Egger, R., & Buhalis, D. (2008). Introduction. In R. Egger, and D. Buhalis (Eds.), *eTourism case studies: Management and marketing issues in eTourism* (pp. 1–3). Hungary: Butterworth-Heinemann.

Eichenbaum, M.S., Rebelo, S., Trabandt, M., (2020). The Macroeconomics of Epidemics. *NBER Working Paper No. 26882*. Retrieved from. https://www.nber.org/papers/w 26882.pdf.

El-Hakim, S., Gonzo, I., Voltolini, F., Girardi, S., Rizz, A., & Remondino, F.(2007). Detailed 3D modelling of castles. *International Journal of Architectural Computing, 5*(2):199–220.

El-Hakim, S., MacDonald, G., Lapointe, J.-F., Gonzo, L., & Jemtrud, M. (2006). On the digital reconstruction and interactive presentation of heritage sites through time. *The 7th international symposium on virtual reality, archaeology and intelligent cultural heritage* (pp. 243–250), Nicosia, Cyprus, 30 October–4 November.

Foni, A. E., Papagiannakis, G., & Magnenat-Thalmann, N. (2002). Virtual Hagia Sophia: restitution, visualization and virtual life simulation. *UNESCO World Heritage Congress.*

Foxlin, E. (2002). Motion tracking requirements and technologies. In K. Stanney (Ed.), *Handbook of virtual environments: Design, implementation, and applications* (pp. 163–210).

Füller J, Hutter K, & Faullant R. (2011). Why co-creation experience matters? Creative experience and its impact on the quantity and quality of creative contributions. *RAND 41*(3): 259–273.

Füller J, Mühlbacher H, & Matzler K. (2009). Consumer empowerment through Internet-based co-creation. *Journal of Management Information Systems 26*(3): 71–102.

Gibson, A., & O' Rawe, M. (2018). Virtual reality as a travel promotional tool: Insights from a consumer travel fair. In T. Jung, and M. tom Dieck (Eds.), *Augmented reality and virtual reality*: 93-107.

Goel, L, Johnson, N, Junglas, I & Ives, B. (2013). Predicting users' return to virtual worlds: A social perspective. *Information Systems Journal*. *23*: 35-63. 10.1111/j.1365-2575.2011.00396.

Govers, R., Go, F.M., & Kumar, K. (2007). Promoting tourism destination image. *Journal of Travel Research 46*(1): 15–23.

Gru¨n, A., Remondino, F., & Zhang, L. (2004). Photogrammetric reconstruction of the great Buddha of Bamiyan, Afghanistan. *The Photogrammetric Record, 19*(107): 177–199

Gunn, C. (1972). *Vacationscape: Designing tourist regions.* Austin, TX: Bureau of Business.

Gutie´ rrez, M., Vexo, F., & Thalmann, D. (2008). *Stepping into virtual realit*y. London: Springer.

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

Hjalager, A. M. (2010). A review of innovation research in tourism. *Tourism Management*, *31*(1): 1–12.

Hobson, J.S.P., & Williams, A.P. (1995). Virtual reality: a new horizon for the tourism industry. *Journal of Vacation Market, 1*(2): 124–135.

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

Huang, C., Wang, Y., Li, X., Ren, L., Zhao, J., Hu, Y., Zhang, L., Fan, G., Xu, J., Gu, X., Cheng, Z. (2020). Clinical features of patients infected with 2019 novel corona virus in Wuhan, China. *Lancet*: 497–506.

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*, 18:116-128.

Jacobson, J., & Holden, L. (2005). The virtual Egyptian temple. *World Conference on Educational Multimedia Hypermedia and Telecommunications,* Montreal, Canada.

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.

Katkuri, P. K., Mantri, A., & Anireddy. (2019). "Innovations in Tourism Industry and Development Using Augmented Reality (AR), Virtual Reality (VR)," *TENCON 2019 - 2019 IEEE Region 10 Conference (TENCON)*, Kochi, India. Doi: 10.1109/TENCON.2019.8929478.

Kenderdine, K. (2004). Avatars at the flying palace: stereographic panoramas of Angkor Cambodia. *In International Conference on Hypermedia and Interactivity in Museums, Berlin*.

Kidd, J. (2015). Museums are using virtual reality to preserve the past – before its too late. *The Conversation.*

Kim, H., & Fesenmaier, D. R. (2008). Persuasive design of destination websites: An analysis of first impression. *Journal of Travel Research*, *47*(1): 3–13.

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., Lee, C.K., & Jung, T. (2020). Exploring Consumer Behaviour in Virtual Reality Tourism Using an Extended Stimulus-Organism-Response Model. *Journal of Travel Research*. *59*(1): 69–89.

Kim, M.J., Lee, C.K., & Preis, M.W. (2020). The impact of innovation and gratification on authentic experience, subjective well-being, and behavioural intention in tourism virtual reality: The moderating role of technology readiness. *Telematics and Informatics* 49. https://doi.org/10.1016/j.tele.2020.101349

Kim, T.G., Lee, J.H., & Law, R. (2008). An empirical examination of the acceptance behaviour of hotel front office systems: an extended technology acceptance model. *Tourism Management 29*(3): 500–513.

Lee, O., & Oh, J.-E. (2007). The impact of virtual reality functions of a hotel website on travel anxiety. *Cyberpsychology and Behaviour, 10*(4): 584–586.

Lo, W.H., & Cheng, B. (2020). Does virtual reality attract visitors? The mediating efect of presence on consumer response in virtual reality tourism advertising. *Information Technology and Tourism 22:* 537–562.

Martins, J., Goncalseva, R., Brncoa, F., Barbosaa, L., Melo, M., & Bessaa. (2020). A multisensory virtual experience model for thematic tourism: A Port wine tourism application proposal. *Journal of Destination Marketing and Management.* http://dx.doi.org/10.1016/j.jdmm.2017.02.002

Meng, B., & Choi, K. (2016). The role of authenticity in forming slow tourists' intentions: Developing an extended model of goal-directed behaviour. *Tourism Management 57:* 397–410. doi:10.1016/j.tourman.2016.07.003

Mennecke, B. E., Terando, W. D., Janvrin, D. J., & Dilla, W. N. (2007). It's just a game, or is it? Real money, real income, and real taxes in virtual worlds. *The Communications of the Association for Information Systems, 20*(15): 134–141.

Mishra, N.T.P., Das, S.S., Yadav, S., Khan, W., Afzal, M., Alarifi, A., Kenawy, E.R., Ansari, M.T., Hasnain, M.S., & Nayak, A.K. (2020). Global impacts of pre and post COVID-19 pandemic: Focus on social economic consequences. *Sensors Internationa*l *1*: 1-7.

Molz, J. G. (2012). *Travel connections: Tourism, technology, and togetherness in a mobile world*. Routledge.

Moorhouse, N., Tom Dieck, M. C., & Jung, T. (2018). Technological innovations transforming the consumer retail experience: A review of literature. In T. Jung, and M. tom Dieck (Eds.), Augmented reality and virtual reality. *Progress in is. Springer, cham* (pp. 133-143).

Moro, S., Rita, P., Ramos, P., & Esmerado, J. (2019). Analysing recent augmented and virtual reality developments in tourism. *Journal of Hospitality and Tourism Technology*, 10:4.

Mura, P., Tavakoli, R., & Pahlevan, S. (2017). 'Authentic but not too much': exploring perceptions of authenticity of virtual tourism. *Information Technology Tourism*, *17*: 145-159.

Nayyar, A., Mahapatra, B., Le, D.N., & Suseendran, G. (2018). Virtual Reality (VR) and Augmented Reality (AR) technologies for tourism and hospitality industry. *International Journal of Engineering and Technology*, *7:* 156-160.

Nielsen, N. C., & Liburd, J. J. (2008). Geographical information and landscape history in tourism communication in the age of web. 2.0. *Journal of Travel and Tourism Marketing*, *28*(3–4): 282–298.

Owen, R. (2008). Virtual gladiators and tigers to feature in Disneystyle rewind Rome. *Times Online*.

Paquet, E., & Viktor, H. L. (2005). Long-term preservation of 3-D cultural heritage data related to architectural sites. *ISPRS 3D Virtual Reconstruction and Visualization of Complex Architectures, Mestre-Venice, Italy*, 22–24 August.

Pietschmann, D., Valtin, G., & Ohler, P. (2012). The effect of authentic input devices on computer game immersion. *Computer games and new media cultures*: 279-292

Pine, B.J., & Gilmore, J.H. (2007). *Museums and authenticity.* Museum News.

Potter, L.E., Carter, L., & Coghlan, A. (2016). Virtual Reality and Nature Based Tourism: An opportunity for operators and visitors. *Proceedings of 28th Australia Conference on computer-human interaction*. http://dx.doi.org/10.1145/3010915.3011854.

Prem, K., Liu, Y., Russell, T.W., Kucharski, A.J., Eggo, R.M., & Davies, N. (2020). The effect of control strategies to reduce social mixing on outcomes of the COVID-19 epidemic in Wuhan, China: a modelling study. *The Lancet Public Health 5*(5): 261–270.

Qadri, M., Hussain, M.S., H., Shafaq. J., & Ifthikar, S.A. (2019). Virtual Tourism Using Samsung Gear VR Headset. *International Conference on Information Science and Communication Technology* (ICISCT).

Racz, A., & Zilizi, G. (2019). Virtual Reality Aided Tourism. *Smart Cities Symposium Prague*. 10.1109/SCSP.2019.8805727

Radde, B. (2017). *Digital Guest Experience: Tools to help hotels to manage and optimize the digital guest experience*. Hamburg: Tredition.

Rauscher, M., Humpe, A., & Brehm, L. (2020). Virtual Reality in Tourism: Is it 'Real' Enough? *Academica Turistica*, *13*(2):127-138.

Refsland, S. T., Ojika, T., Addison, A. C., & Stone, R. (2000). Virtual heritage: breathing new life into our ancient past. *IEEE Multimedia*, *7*(2): 20–21.

Reidsma, D., Kragtwijk, M., & Nijholt, A. (2001). Building ''Huys Hengelo'' in VRML. *In Proceedings of the International Cultural Heritage informatic Meeting*. Milan, Italy, 3–7 September 2001.

Resta, P., & Shonfeld, M. (2013). A study of trans-national learning teams in a virtual world. *In society for information technology and teacher education international conference.* Association for the Advancement of Computing in Education (AACE).

Rizvic´, S., Sadzak, A., Buza, E., & Chalmers, A. (2008). Virtual reconstruction and digitalization of cultural heritage sites in Bosnia and Herzegovina. National Centre for Digitization. *Review Journal*, *12*: 82–90.

Rome Reborn Brochure. (2008). *Rome reborn brochure 2008*.

Rosman, R., & Stuhura, K. (2013). The implications of social media on customer relationship management and the hospitality industry. *Journal of Management Policy and Practice*, *14*(3): 18–24.

Shiode, N., & Grajetzki, W. (2000). A virtual exploration of the lost labyrinth: developing a reconstructive model of Hawara labyrinth pyramid complex. *CASA*, *29:* 1–10.

Siddik, M.N.A. (2020). Economic stimulus for COVID-19 pandemic and its determinants: evidence from cross-country analysis. *Heliyon* 6: 1-10.

Sigala M. (2005). Integrating customer relationship management in hotel operations: managerial and operational implications. *International Journal of Hospitality Management 24*(3): 391–413

Stumpfel, J., Tchou, C., Hawkins, T., Martinez, P., Emerson, B., & Brownlow, M. (2003). Digital reunification of the Parthenon and its sculptures. *4th International Symposium on Virtual Reality, Archaeology and intelligent Cultural Heritage.*

Sussmann, S., & Vanhegan, H. (2000). Virtual reality and the tourism product: substitution or complement? *Proceedings of the European conference on information systems 2000*, paper 117.

Toubekis, G., Mayer, I., Doring-Williams, M., Maeda, K., Yamauchi, K., & Tangiuchi, Y. (2009). Preservation and management of the UNESCO world heritage site of Bamiyan: Laser scan documentation and virtual reconstruction of the destroyed Buddha figures and the archaeological remains. *In Paper presented at the 22nd CIPA symposium, Kyoto, Japan*.

Tromp, P. (2017). *How virtual reality will revolutionize the hospitality industry*. Available at: https://www.hospitalitynet.org/opinion/4080737.html.

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

Vince, J. (2004). *Introduction to virtual reality*. New York: Springer.

Wang, M., Cao, R., & Zhang, L. (2020). Remdesivir and chloroquine effectively inhibit the recently emerged novel coronavirus (2019-nCoV) in vitro, *Cell Research*: 269–271.

Wang, Y. (2007). Customized authenticity begins at home. *International Journal Of Tourism Research 34*(3):789–804. doi:10.1016/j. annals.2007.03.008

Whyte, J. (2002). *Virtual reality and the built environment*. Oxford, UK: Architectural Press.

Yeh, C.-H., Wang, Y.-S., Li, H.-T., & Lin, S.-Y. (2017). The effect of information presentation modes on tourists' responses in Internet marketing: The moderating role of emotions. *Journal of Travel and Tourism Marketing*, *34*(8): 1018–1032.

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*. DOI: 10.1080/02508281.2020.1788351

Zheng, J. Y., & Zhang, Z. L. (1999). Virtual recovery of excavated relics. *IEEE Computer Graphics and Applications*, *19*(3): 6–11.

Zyda, M. (2005). From visual simulation to virtual reality to games. *Computer*, *38*(9): 25-32.