

# Virtual Reality Tourism: A Journey Across Time and Space

Juan Chen<sup>1</sup>, Nannan Xi<sup>2</sup>, Zhe Xue<sup>3</sup>



Resource: <https://www.vrfocus.com/2018/04/real-time-vr-views-of-earth-from-space/>

**ABSTRACT:** Virtual reality has been used in many contemporary contexts, such as entertainment, education, marketing and tourism. It can be observed that computer-based 3D simulated technology is reshaping our reality. Especially in tourism, virtual reality is playing an increasingly critical role in helping tourists obtain simulated, highly immersive, and novel traveling experiences. As researchers in this area, we are curious about the traveling experience in virtual reality and thus present a series of related discussions. This chapter aims at answering the following four questions: 1) How is virtual reality technology applied to tourism activities? 2) What are the most prominent impacts that virtual reality has had on tourists' experiences? 3) What limitations does adopting virtual reality to tourism have? 4) What aspects of tourism have been deconstructed and reconstructed by virtual reality?

This chapter investigates how virtual reality can be integrated into tourism activities to enhance tourists' experiences. Virtual reality technology which incorporates visual, auditory, olfactory, tactile and other senses, allows tourists to explore the environment from a first-person perspective and also change the environment as well. Thus, virtual reality not only generates an illusion of space and time for tourists, it endows them with multi-sensory experiences and combines aspects of utilitarianism and imagination during their tours.

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<sup>1</sup> School of Business and Administration, Zhongnan University of Economics and Law, Wuhan 430073, China.

<sup>2</sup> Faculty of humanities, University of Turku, Turku 20500, Finland.

<sup>3</sup> School of Management Engineering, Anhui Polytechnic University, Wuhu 241000, China.

Four aspects of tourists' experiences most influenced by virtual reality are discussed. Virtual reality improves accessibility innovatively by creating a 3D computer-based virtual destination. Virtual reality could also be used to help preserve heritage by conserving the current situation of these sites in the forms of graphics and data. Furthermore, virtual reality enriches the forms of recreation activities and helps tourists to explore tourism sites in a novel way by acquiring experiences co-created with those sites. Last but not least, virtual reality enables potential tourists to experience the tour before they make a travel decision.

However, a virtual tour is not completely optimal in terms of experience, thus this chapter also discusses the limitations of adopting virtual reality in tourism. The authenticity of virtual reality is something people often doubt, as many experiences gained during a tour are so complicated that recent technology cannot adequately stimulate them. People also find virtual reality incapable of stimulating the long-time feeling that are created by a real tour, which generates a problem with temporality. Moreover, once you have experienced the site virtually, it is possible that this will satiate your desire to visit the tourism site for real. Immersive virtual reality also cannot stimulate social interactions very well, so a virtual tour that excludes tourism gazes may be critically received.

While most people pay attention to virtual reality's promising potential, we cast our sights on aspects that virtual reality cannot realize, at least at present. So in the fourth section of this chapter, we employ a post-modern discourse and discuss the deconstructional and reconstructional powers of virtual reality in tourism. We conclude with the view that a tourist may be confused by losing a sense of reality in a virtual tour, and their journey may become flat, one-off, fragmented, and be devoid of personal interaction.

**KEY WORDS:** virtual reality, tourism, presence, post-modernity

Virtual reality technology is part of the "technological utopia" (Lister et al., 2009). It carries our eager dream of in-depth dialogue between human beings and the world. However, being one of the "meta-narratives" that characterized the discourse of modernity, the technological utopia itself has received as much following as it has reconsideration in the post-modern era. Thus, virtual reality is worshiped by some while doubted by others, highly expected by some while deeply feared by others. However, in regard to tourism, it seems that using virtual reality to improve its efficiency and expand its forms has gradually destroyed its meaning. We re-examine the relationship between virtual reality and tourism (a domain among the earliest advocates of virtual reality technology) and discuss the deconstructive and reconstructive power of virtual reality. We apply a perspective of time and space throughout this chapter to step into the essence of virtual reality and shed light on its post-modernity.

## **1. The embrace of virtual reality by tourism**

Embracing virtual reality by tourism has led to many benefits. Virtual reality accelerates the delivery efficiency of tourism products and services by providing a unique and rich experience to tourists. In order to see how this has happened, let's first consider how the feeling of "presence" works.

### **1.1. Presence and its metaphor**

From a technical perspective, virtual reality is a sophisticated yet manageable composition of techniques and devices. But looking at it philosophically it is another thing, full of metaphors about reality and virtue, departure and arrival, and direct and indirect experiences. These metaphors are implanted within the core concept of "presence."

Virtual things are no stranger to us. Human beings not only seek the truth of the real, but also seek the best representations of the real. Paintings, photographs, radio shows, movies, etc., are all media forms (also art forms) invented by us to represent the real world. Throughout all these years of endeavor, we have, to some extent, fulfilled our deep-down desires to replicate nature artificially. From this perspective, virtual reality is a marvelous technique that establishes a world full of three-dimensional images, senses users' reactions and emotions, and changes objects in the virtual environment according to actions taking place in real-time (Greenbaum, 1991; Coats, 1992). There is virtually no other information technology that enables human beings to observe and change the virtual world in such a natural way like virtual reality.

Virtual reality involves us, fascinates us and empowers us, by imposing illusions on us. The concept of "presence" is at the core of virtual reality's magic. That is to say, many have believed that "presence" is one of the main reasons that virtual reality has such profound effects on the human psyche. Scholars prefer to understand it under the metaphor of "transportation", that is, a sensation of being conveyed to a virtual world (Lombard and Ditton, 1997; Schuemie et al., 2001). Transportation has two measures: *departure*, a feeling of detachment from the physical environment, and *arrival*, a feeling of being attached to the virtual environment (Kim and Biocca, 1997). A well designed virtual reality world can make users generate feelings of "being there", and they will have illusions that they are physically in the world depicted by virtual reality rather than in the real world (Herz and Rauschnabel, 2018).

This may sound like a human-made daydream or a technology-based wonderland - you may think you're diving of the coastline of Australia one moment, however, once you remove the HMD (head-mounted display) you are wearing on your head, you find you are in fact in a dull office room. You have not been physically transported to the coastline of Australia, yet you have a beautiful memory of that diving experience. So, what else matters?

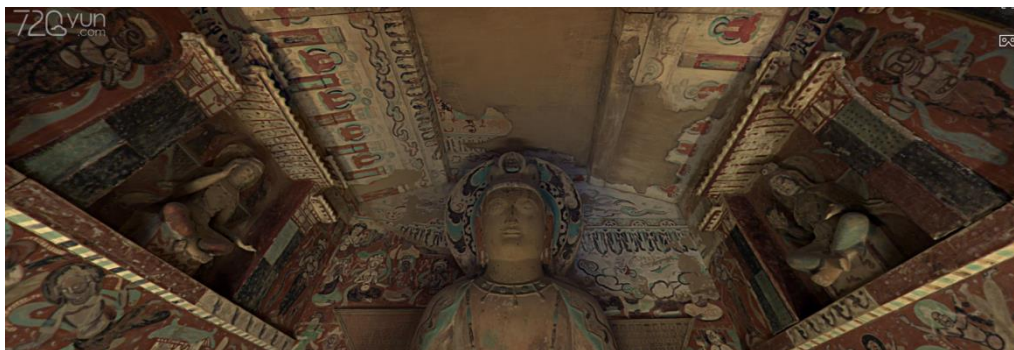
Especially in tours which are composed of a bunch of highly experienced activities, virtual reality enables the tourism industry to reshape its space and time by changing how tourist experiences are created and transferred (Huang et al., 2016). In a virtual

reality tour, it is not our physical body that travels, but our technology-mediated virtual body that travels around without time and space limitations.

## 1.2. Multi-sensory experience in virtual reality tourism

Presence imposes illusions about space as well as time. Tourists can temporarily “escape” from the real world and be immersed in the virtual world by the help of virtual reality techniques. The more advanced the reality technology is, and the more vividness and interactivity the virtual reality tour has, the more real the illusion of space is. Do tourists have any illusions of time during a virtual reality tour? The answer is yes, and this is related to an experience of “flow” which is “the holistic sensation that people feel when they act with total involvement” (Csikszentmihalyi, 1975, pp. 36). When experiencing flow, one can lose one’s sense of time (Skadberg and Kimmel, 2004; Shin, 2017, 2018).

The reshaping of space and time technically rebuild a tourist’s sensory experience in virtual reality. The visual sense comes first, as it is our prominent way of exploring the world. As an example, once visitors enter the virtual space of Dunhuang Mogao Cave in China, they can freely rotate their body to view the stone walls from different directions. To achieve the effect of close observation, they can control their point of view to zoom in on the murals. According to one virtual visitor: “The murals are clearly recorded in digital high definition, even more so than if you were physically there.”



Resource: <http://www.72yun.com>

Figure 1 An image from the visitor’s perspective in the virtual tour of Dunhuang Mogao Cave

With a highly realistic simulation, virtual reality can represent natural landscapes or historical heritages with deep visual cues. The vividness of imagery presentation enhances the visual image appeal for tourists, and according to Ye and Tussyadiah (2011, p. 132) “the interest that a picture generates when viewed by potential visitors inspires them to visit the destination whether they are first-time visitors or repeat visitors”. This visual experience provides pleasing imagery of a destination in the mind of potential tourists (Hyun and O’Keefe, 2012; Tussyadiah et al., 2016) and thus encourages potential tourists to come to visit the real site (Marasco et al., 2018).

However, not only the visual sense, but also the experiences of audio, olfactory, and

haptic can be enriched by virtual reality. For instance, Finland offers adventure rides which combine a roller coaster with virtual reality technology in Linnanmäki Amusement Park. The rides allow visitors to experience space scenery in a 360 degree field through video animation where they dodge planets at high speed. The music, acceleration and distance sensors constantly synchronize the 360-degree virtual image as the rides move around (Dieck et al., 2018).



Resource: <https://www.linnanmaki.fi/en/rides/linnunrata-extra>

Figure 2 The virtual reality roller coaster “Linnunrata eXtra” in Linnanmäki Amusement Park, Finland

### **1.3. Combinations of realism, hedonism and imagination**

Advancing senses by way of Virtual reality technology adds much more realism to tourism comparing to how tourism products and services in the forms of text and pictures have been presented in earlier days. Such an increase in perceived realism affects tourists’ visiting intentions and behaviors. Compared with solely picture-based presentations of tourism destinations, the virtual reality tour arouses tourists’ emotional states and thus has superior effects on tourist attention, interest, desire and intention (Yeh et al., 2017).

Almost all tourism activities involve some hedonic aspects, which can be interpreted as "a longing to experience different kinds of bodily and/or spiritual pleasure" (Jansson, 2002, pp. 436). Researchers have pointed out that virtual reality and the feeling of ‘presence’ generated during a virtual reality tour can lead to tourists' experiencing hedonic feelings or pleasure (Tussyadiah et al., 2017). This feeling is likely to root in the novelty of the virtual reality technique and to generate creative cognitive fulfillment. As an example, people virtually visiting the ancient city of Miletus enjoy a much more vibrant and more exciting exploration experience than simply site-seeing, being able to virtually select clothing from different periods, conduct virtual experiments related to some of Archimedes’ discoveries, be archaeologists who reassemble ancient vases from virtual shards of ceramic, and assist an ancient sculptor in creating a statue of Zeus (Gaitatzes et al., 2001; Roussou, 2004).

Virtual reality also adds an imaginary facet which can compensate for the realism orientation of tourism. Being used to tell and create stories affectingly, virtual reality can involve tourists in scenarios which only exist in people's imagination. For example, in the "Aladdin's Magic Carpet Ride" in DisneyQuest's Indoor Interactive Theme Park in Orlando, tourists race on a virtual magic carpet using a motorcycle-type apparatus and wearing HMDs; in "Pirates of the Caribbean: Battle for Buccaneer Gold", a four-person crew cooperate with each other (one guides the ship and the other three fire imitation cannons) to fight virtual enemy pirates (Mine, 2003; DisneyQuest, 2009); in the virtual reality roller coaster trip at the British theme park Alton Towers, tourists are recruited by an imaginary company called Galactica to accomplish a space-exploration task. Thus, virtual reality creates ravishing narratives, which inspire tourists' imagination and add to the charm of tourism sites.

## **2. Reshape of tourism by virtual reality**

Indeed, scholars have summarized various applications for virtual reality within the tourism sector (see Guttentag, 2010; Tromp, 2017; Moorhouse et al., 2018), based on functionalism mostly. What we want to do here is to apply a perspective of space and time and focus on four experiential aspects of tourism influenced most prominently by virtual reality. All of these four aspects imply the tremendous reconstruction power of virtual reality.

### **2.1. Accessibility**

Transportation infrastructures work as the link between tourists and tourist destinations (Leiper, 1990), and are considered as the primary means of improving tourism accessibility. An example is the way high-speed railway receives a lot of attention because it can "compress" time and space (Chew, 1987) by means of its ability to reducing the traveling time from a tourist's departure to arriving at their tourism destination from days to a matter of hours (Givoni, 2006), and thus expanding the radius of tourists' traveling space by 2-3 times than before (Theobald, 1994).

Virtual reality innovatively solves the problem of accessibility to tourism destinations, although in a diametrically opposite way. Once tourists are immersed in the virtual reality environment, their traveling time can be compressed within minutes or seconds. Meanwhile, their traveling radius can be enlarged to encompass as large an area as the imagination features of the virtual reality system allow. Technically, you can dive in the coastal waters in Australia in the first second, and walk on the Great Wall of China in the next.

Increasing accessibility in tourism not only brings convenience, time and cost savings, but also gains the well-being of all kinds of tourists, especially those who are disabled. For instance, Shakespeare's house in Warwickshire, Britain helps people in wheel chairs by providing them with a virtual reality tour of the second floor. With this help, they can navigate and observe the environment where Shakespeare once lived freely,

without the need for physical activity that may otherwise prove challenging (Wiltshier and Clarke, 2017).

As well as disabled people, older adults, those with poor health conditions, people too busy for a trip, and the "hermit" group (meaning those who choose to stay at home) can all benefit from a virtual reality tour. Some of the national parks in Canada have applied virtual reality as a promotion to attract the "hermit" group, and persuade them to come to see the areas first-hand (Wiltshier and Clarke, 2017). Also, the Marriott hotel brand has created facilities called "Teleporters" which are somewhat like telephone booths, "transporting" people to different corners of the globe by way of a fully immersive, 4-D sensory experience to enable couples to have a virtual honeymoon (emarketer.com, 2015). From the above perspective, virtual reality largely improves or even redefines the concept of accessibility, by "bringing down the final set of walls, having the world brought into our homes, while at the same time, from our homes, entering the world" (Cranford, 1996, pp. 90).



Resource:

<http://www.creativeguerrillamarketing.com/augmented-reality/free-vacations-marriotts-virtual-reality-teleporter/>

Figure 3 The "Teleporter" applied by Marriott to offer virtual reality experiences

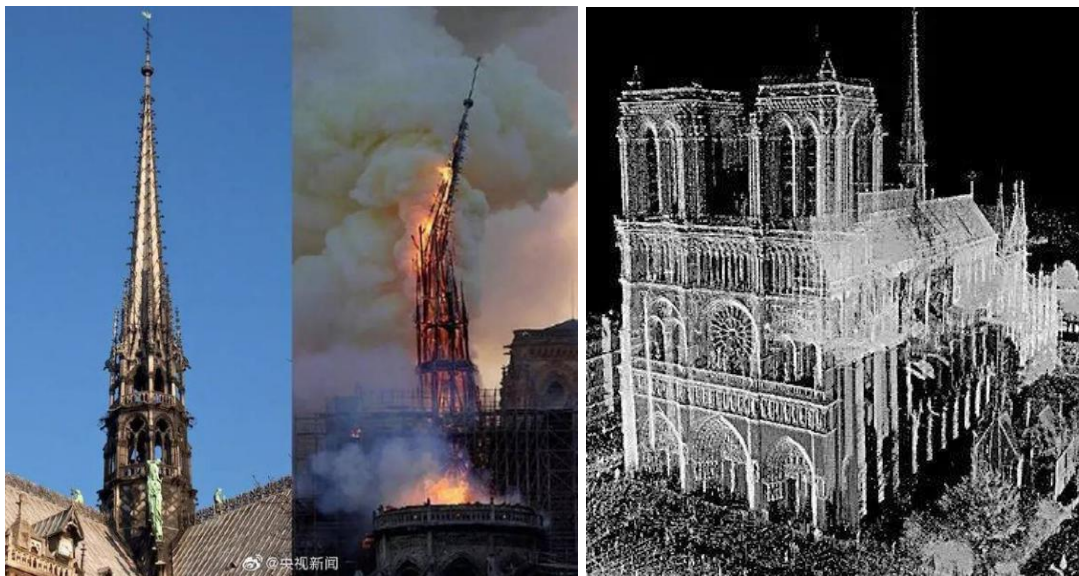
## 2.2. Preservation

*"Heritage is our legacy from the past, what we live with today, and what we pass on to future generations. Our cultural and natural heritage are both irreplaceable sources of life and inspiration."*

-UNESCO

The majority of people cannot forget the date of April 16<sup>th</sup>, 2019, when France's famous Notre Dame Cathedral was enveloped in a serious fire and the main body of the tower was severely damaged. The rebuilding process will last for a very long time, and as such, it is guessed that this cultural treasure may not be able to receive new visitors for more than a decade. Luckily, since 2015, Dr. Andrew Tallon has performed laser scanning on Notre Dame and formed its 3-D model. So, even if people cannot see it for real, they can enter a virtual world where it still exists and appreciate its past glory.

For heritage sites which are still open to visitors, virtual reality can be used to develop their spatial capacity. There seems to be a dilemma towards these types of sites where the cultural items they hold are worthy of people coming to see and learn, but if too many visitors come, they risk causing them harm. Virtual reality seems to be an excellent way to resolve this dilemma by allowing visitors to see the heritages virtually without disturbing them. Immersive visualizations and 3D reconstructions of heritage sites provide a choice for visitors. By doing this, virtual reality offers protection for heritage sites too fragile to be visited (Bruno et al., 2010). What's more, it brings heritage sites back to life, over and above simply providing a virtual means of access. So, for example in recalling a virtual reality visit to an ancient Greek city, virtual reality can afford visitors a potentially richer experience than merely viewing the sites first hand.



Resource: the micro blog of CCTV news (left); <https://en.softonic.com/articles/notre-dame-rebuilding-apps> (right)

Figure 4 The tower of Notre Dame before and after the fire and its 3D model

As a further function, virtual reality can save information about tourism sites for the future. This function goes with the aims of the World Heritage Preservation Project initiated by UNESCO (United Nations Educational, Scientific and Cultural Organization) which plans at saving the precious historical and natural heritage resources in case one day, natural or human disasters destroy them. To further this aim, UNESCO has been creating a documentary image bank of panoramic pictures and virtual reality films of all its listed heritage sites.

A virtual tour is like a bridge connecting the past, the here and now, and the future. Through a virtual tour, we can travel back in time to see what a heritage site was like in its heyday. Our off-spring can share the same visions we saw in the future, but virtual reality saves the stories and experiences related to heritage sites rather than merely storing information, data and images that relate to them. So, what a wonder it would be to imagine people visiting Notre Dame Cathedral virtually in the future, not only seeing



its images but also witnessing all of its glory times. How did it look when Napoleon I was crowned here? What was it like when Joan of Arc was canonized here? What was it like when Esmeralda and Quasimodo met in Hugo's novel? These virtual visitors can even feel the grief we felt when it was destroyed by fire, and the joy that we look forward to experiencing when the rebuilding and restoration is finished.

### **2.3. Exploration by co-creating**

Educational tourism is one of the trends that has had higher growth in recent years. However, visitors have come to dislike the passive receipt of information and want to be more involved. That is why many museums have tried to apply reality technology to innovate the traditional formats of exhibitions. Because virtual reality allows users to observe the virtual world from a first-person perspective, visitors who were onlookers before can now walk into great works of art, such as e.g. the "Wilton Diptych", "The Virgin of the Rocks", "Mars and Venus", etc., exhibited in the Sainsbury Wing gallery in the British Museum. In China, the Palace Museum has cooperated with the internet company Tencent to immerse visitors in the painting "The thousands of miles of rivers and mountains" allowing visitors to become absorbed into the space and timeline created by the painting.

A virtual reality tour enables visitors to positively interact with the tourism sites, their history, and the surrounding knowledge. Virtual reality museums excel in the context of traditional museums because of the extraordinary experience they offer to visitors, granting unparalleled levels of access. Such a visitor experience can be seen in the virtual reality journey provided by the Geovor Tin Mine Museum where visitors can experience an underground mine (Jung et al., 2016), or the Oculus cooperation between the British Museum and an Egyptian collection, allowing users to navigate an ancient Egyptian tomb, see the mummies and appreciate the funeral art. Additionally, some tourism destinations have developed virtual reality applications and games to attract tourists and supply them with further knowledge (Zarzuela et al., 2013).

Virtual reality encourages visitors to co-create experiences and values with tourism content providers. Recalling the virtual reality visit to the ancient Greek city and the "Pirates of the Caribbean" battle mentioned previously; virtual reality can generate an imaginary environment which does not exist and is otherwise impossible to exist (Slater and Sanchez-Vives, 2016). Thus it provides a broad space with almost no physical restrictions for tourists to imagine, think, and explore. Virtual reality can bring cultural relics that can only remain static in a museum, back to life. Visitors can decide how to navigate within the virtual landscape and how they interact with the sites' facilities. Tourists begin to interpret touristic content themselves inside the virtual world they are provided with, instead of just standing and observing from outside. So, they merge their living space with the tourism space, and thus create marvelous experiences for themselves.

## **2.4. Pre-tour promotion**

The travel process can be divided into three phases: the pre-visit phase, the on-site phase, and the post-visit phase (Neuhofer et al., 2012). The pre-visit phase is crucial in the overall travel process since, in this phase, tourists develop their expectations about the visit and make their decisions about the trip. However, many tourism products and services are actually “confidence goods” that consumers are unable to try before actually purchasing (Wang et al., 2015). In the past, when people made travel decisions, they relied on descriptive information provided by two-dimensional pictures or videos. Considering the richness of tourism products and services, this kind of presentation is far from adequate.

The subjective experience of presence in virtual reality can translate into real-world attitudes and induce behavioral change (Fox et al., 2014). Thus a virtual tour can be persuasive and act as an effective communication tool in the pre-visit phase. A virtual reality tour not only provides more detailed information compared to two-dimensional pictures or videos, but also offers an immersive experience of the upcoming tour. It has the capability of “satisfying the goal of acquiring functional and esthetic trip information as a preparatory step to the trip intention phase” (Kaplanidou and Vogt, 2006, pp. 205). Consumers often use product experiences for product evaluations, and direct product experiences advance indirect experiences that are derived from visual and verbal messages in helping persuade people to make a favorable decision (Hamilton and Thompson, 2007). The information gained from direct experience is more concrete and credible, and it strengthens confidence and lessens uncertainty in consumers’ purchase decision making. Virtual reality can provide an extensive sensory experience to potential tourists. Particularly, virtual reality gives tourists a sense of what it is like to be there, a “try before you buy” experience, and an experience close to the direct experience. According to Cho et al. (2002), the usefulness of virtual tour experiences for destination marketing lies in their ability to make potential tourists evaluate the value of the actual experience more accurately. More specifically, it improves tourists’ efficiency of information searching, enhances their searching ability to gain experiential attributes, and increases their confidence that the actual tour experience will satisfy them.

A deeper mechanism may lie in the fact that marketing itself has a close relation to virtual scenes. For instance, advertisements are like a play rehearsal where potential customers imagine the situation where they touch, feel and use a product. Their self-referencing and self-persuasion processes will be stimulated, which will in turn help the customer to make a more positive evaluation and decide about the product. The same can be said for tourism products, and an experience during a virtual reality tour connects the pre-visit stage and the on-site stage, making the pre-visit stage a vivid rehearsal of what tourists will experience during the real tour. So, to better understand and evaluate the actual tour, you may want to try a virtual one, and the information and feeling acquired during this rehearsal might make potential visitors behave more positively when choosing their tourism destinations.

### **3. Virtual reality is not almighty in tourism**

The above analysis implies that applying virtual reality in tourism can generate exceptional value, regardless of the economy, society or culture in which it is implemented. The era of the virtual reality tour is indeed coming. However, it is necessary to notice that virtual reality still has limitations, which remind us of the essence of virtual reality technology: As an information technology with high fidelity that represents the real world, virtual reality is leading a widespread discussion about the contraction and cohesion of realism and simulation. What needs to be asked is whether this stimulation completes the real world, substitutes it, or maybe one day twists and subverts it? There is no definite answer at present, however, what is admitted is that although virtual reality technology and its application in tourism hold with high potential, their consideration and implementation is far from mature.

#### **3.1. Authenticity**

With regard to virtual reality, a question of authenticity rises above all. Authenticity mainly refers to what is true, genuine, or real (Beverland and Farrelly, 2010). A tourist's perception of the authenticity of a virtual reality tour experience will be a crucial factor that influences his or her acceptance of it as a substitute for a real tour (Guttentag, 2010). As Paquet and Viktor (2005) have said, "most people want to see reality and not only virtuality" (p. 1).

From the traditional view of "objective authenticity", people evaluate their experiences with an objective, criteria-based evaluation (Wang, 1999). So, it is no surprise that there are considerations about the authenticity of a virtual reality tour, given that virtual reality cannot fully revivify all of the detailed cues that are encountered in traditional tourism. As noted by Cheong (1995), "how is VR able accurately to simulate the smell of ocean spray and the splash of seawater on one's face as one participates in virtual surfing?" (p. 421). There are indeed surveys that show virtual reality tourism is not always welcomed (Sussmann and Vanhegan, 2000; Prideaux, 2002). However, since the technology is still developing, it may one day be able to perfectly simulate the smell of the ocean, the splash of seawater on tourists' faces, a fragrant breeze wafting across their arm, or a sweet song of birds in the morning. Regardless of how accurate technology can render these experiences, what truly matters is how tourists perceive these imitations.

From the perspective of "constructive authenticity," the authenticity of the virtual reality tour experience is negotiable. People rely on their personal perceptions to evaluate the authenticity of a thing (Cohen, 1988), so even if a tourism product exhibits features that are staged or contrived, tourists may still view it as authentic. This is good news for propagating applications of virtual reality in tourism. However, a somewhat harsh post-modern question can be raised: Do people really want to see the real, especially if one day in the far future, virtual reality is as exciting or perhaps more exciting than the real thing? Virtual reality might make people gradually perceive the simulation is in fact

the real, denying the fact that it is merely an image or a sensational reflection of the real, so we will discuss this question further in the following section.

### **3.2. Temporality**

With a virtual reality tour, you can escape from the physical world for a while. However, if you are looking for days or weeks of escaping from your ordinary life to visit a strange place, there is a large chance a virtual tour will leave you disappointed. Tourists cannot immerse themselves in virtual reality for too long because a condition known as *cybersickness* prevents them from doing so. With symptoms such as eye strain, disorientation and nausea, cybersickness becomes more severe as the exposure time increases (LaViola, 2000; Sadowski and Stanney, 2003). Thus, long-term virtual reality exposure does not seem currently viable.

A real tour can easily build a feeling of fleeting time and a dynamic perception that may never be achieved by a virtual reality tour. No matter whether it is the experience of diving on Australia's Great Barrier Reef, flying over the Lake District of England, or going visiting a glorious Egyptian market, a virtual reality tour is almost always about "heightened moments" and must contain one heightened moment after another in its script, otherwise people will become distracted. But the real tourist experience contains something more which seems to bridge these gaps, and enable a prolonged but accepted time-continuum. Just as Graburn (1989) pointed out about the essence of temporality to the tourism experience, the real tourism process begins with the "ordinary," progresses into "heightened" moments, and returns to the "ordinary". A real tour dynamic involves both heightened moments and ordinary moments. When a tourist has turned the heightened moments into ordinary ones, it means that he/she has blended into the life of the tourism destination. This is more meaningful than just sight-seeing and leaving for the next destination. A virtual reality tour may represent the tourist moment or heightened moments, but what about the ordinary moments, and the transitional process from ordinary to heightened moments and back to ordinary? This kind of problem requires further thinking because as one can never engage in a virtual reality tour for too long, one cannot have the exact experience change that occurs during a long-duration journey. Therefore, the tourist's experiences during the tour may never "become embedded within the totality of lived experiences" (McCabe and Foster, 2006, pp. 194).

### **3.3. Satiation**

The satiation problem presents a dilemma of choosing between the real tour and its artificial replica. While the motivation for employing virtual reality is to attract people to consume the experience in real life, it is not clear as to whether this always works. People normally acquire less utility per unit of product when they consume more (Andersen, 2001). So once a tourist has experienced the scene in a virtual reality tour, will the satiation they achieve make them more or less likely to visit the spot for real?

Deng et al. (2018) found that a virtual reality tour generating similar experiences to those seen in reality may in fact dissuade tourists from future consumption. To be specific, the more vivid and interactive the virtual reality tour is, the more similar the virtual experience is to the actual experience. Thus, satiated consumers are more likely to have less desire to engage in future consumption. Deng et al. (2018) declared that there is a close relationship between satiation and the types of experiences that are afforded. Experiences which can be stimulated by virtual reality to a high fidelity level generate the most satiation, e.g. watching shows, or visiting museum exhibitions. When it comes to activities that virtual reality cannot fully simulate (e.g. some type of vigorous outdoor activity), a virtual reality tour works better as it causes less satiation. These kind of studies open the door for us to notice the dilemma of virtual reality's fidelity, and it seems that a highly level of fidelity doesn't always result in good outcomes. A further thought may be that consumers seem to expect virtual reality to create content that is not only highly representative of the real, but which also goes beyond the real in some way. Thus, they are looking forward to something special being provided by virtual reality.

### **3.4. Tourism gaze**

Urry (1992) introduces the term 'tourist gaze' to describe the process through which a tourist objectifies and interprets the place that he or she visits. The term "tourist experience" is a socially constructed term, and its meaning is associated with multiple interpretations from social, environmental and active components of the overall tourist experience. Tourists travel to different places, interact with people from diverse cultural backgrounds, and bring back travel memories. Tourists "gaze" at the local people's daily life during their visits and take such glimpses as one of the most novelty-affording parts of their tours. At the same time, they are being gazed at by local people, and this is well illustrated in the travel photo presented below taken by a tourist in Iran, which happens to capture the interesting "gazes" that take place (Nikjoo and Bakhshi, 2019). In the photo, a tourist is sitting beside local soldiers on the steps of a historic site. A second tourist takes a photo of all of them. His photography causes different responses, where the first tourist is smiling at him while one of the soldiers is staring at him. These interesting gazes are happening at the same moment and are captured in one photo, revealing how complicated and amazing the interactions are between the landscape, residents and tourists.

However, virtual reality cannot currently simulate tourism gazes. Virtual reality tours are usually designed for a single tourist, and this orientation eliminates the most complex and uncontrolled factors that influence the tourism experience - the tourist's companions and local residents. This somehow makes it easier to realize a virtual reality tour. But it is also possible that a virtual reality tour which excludes encounters with other tourists and native residents may be criticized as being a 'tour without a soul'?



Resource: Nikjoo and Bakhshi (2019)

Figure 5 A photo of local people sitting with a visitor in Iran

#### **4. The deconstructive power embedded in virtual reality**

*Virtual travel opportunities are prevalent and mass-market. As such they are generic, formulaic, all-ages and affordable. ... Family-friendly “real life” travel will be the norm, ... Travel is dangerous, expensive and highly out of reach for most people, ...*

*-Whittington (2014)*

The scene above depicts a holiday ‘norm’ in 2050 under the driven forces of technology, including virtual reality, as described by Whittington (2014). It is a fascinating, yet thought-provoking foretelling of what a future tour might be like.

Questioning the validity of things that already exist or feature commonly in our daily life is one of the main issues of post-modern era. Virtual reality tourism is no different, and its validity is still questionable and subject to our opinions. Will the day that people decide to go on virtual visits instead of actually traveling arrive? If that day really comes, then is it a step forward or backward for human beings? How do we deal with the relationship between physical body and images in mind? How do we rethink realism in a time of virtual reality? How does our behavior change under the influence of these reality technologies? In asking such questions, we must realize that applying virtual reality in tourism has not only limitations, but even potential risks. Therefore, it is worthwhile taking a second look at these questions.

##### **4.1. Confusion by losing reality**

Does virtual reality change our mindset just in the same way that other media forms (e.g., television, social media) have in the past? The answer to this may be yes, and something we have designed has finally changed how we think about a number of issues.

The new formulation and content provided by virtual reality have begun to challenge tourists’ subjectivity. Virtual reality may have gradually changed our traveling motivations, our emotional appraisals towards the products and services provided in tourism, and even our understanding of the meaning of traveling. For example, Campbell

(2005) has pointed out that information-mediated environments have caused a gradual shift in people's hedonistic orientation, from realistic hedonism to one of imaginative hedonism. In the past, hedonism meant bodily pleasure for people, but nowadays, hedonism has broadened to include pleasure sought via emotional and spiritual stimulation. It is exotic yet uncomfortable to imagine that in the future, people might refuse to undertake real travel, and turn to a virtual reality tour as a replacement. Thus, their pleasure in traveling would root in the technology simulating traveling, rather than in traveling itself.

At this point, we want to mention the Kremer Museum which is the first "virtual reality only" museum. It was founded by the Dutch art collector George Kremer and his son Joel Kremer, and the collection consists of 74 Dutch and Flemish masterpieces of the 17<sup>th</sup> century. It has no physical location and exists only in the virtual reality environment. The establishment of a "virtual reality only" museum is an event with special meaning. Besides its positive meaning that tourism now can break the limitations of space and largely reduce operation costs, it also suggests that tourism (which was once seen as a highly region-related industry) is now getting rid of its regionalism and becoming "dis-embedded". As more and more parts of our life become "dis-embedded", and the meaning of "places" is de-constructed, it is reasonable to ask whether our concepts of spaces be torn down? This leads us in thought to a situation depicted by several scholars, where people will be "transported" by virtual reality to one virtual space after another, just like homeless vagrants who would possibly never return to their spiritual "home".



Resource: <https://www.thekremercollection.com/the-kremer-museum/>

Figure 6 Kremer Museum existing only in virtual reality

#### 4.2. Fragments of a journey

Tourism means a lot more to tourists than just sightseeing around different scenic spots. Especially today, many citizens have a strong impulse to get away from the pressure of modern life. Can virtual reality fulfill their need for escaping? Virtual reality seems only able to allow us to escape for a while, and even after a virtual journey lasting perhaps half an hour, we may still have to return to our real-life circumstances and admit that we still haven't gone anywhere.

Even with cumulative use of virtual reality to attend several tours, we may still only get a few fragments of 'getaway time' which can never have the same meaning as a couple of days of genuine leisure. This raises a question of whether the whole tourist experience can be achieved by putting all the fragments together? We think not.

Because of the time limitation, we can never indulge in every activity for a long time. There are indeed many activities that are worth taking a long time to appreciate, such as sitting on a bench in a tranquil garden, appreciating a fine painting, learning how to make a ceramic piece, or perhaps hiking in a deserted location. These activities all need plenty of time for people to appreciate their charm. It is therefore worrying that activities which do not need much deep thinking in terms of effort and time are more suitable to be transformed into a virtual tour and may survive, while activities which are not so suited in terms of investing effort and time may be marginalized and perhaps one day vanish.

### **4.3. The flat, one-off experience**

Cohen (1979) first identified five modes of the tourist experience, which are the recreational mode, diversionary mode, experiential mode, experimental mode, and existential mode. The tourist experience is an overall experience consisted of social, environmental, and activity components, ranging from experiences aiming at simply seeking pleasure, to experiences pursuing a particular meaning. During all these levels of experiences, virtual reality seems to have more potential to enrich our experiences of seeking pleasure, rather than seeking for a meaning. For instance, the awe generated by witnessing a marvelous heritage site, an admiration for the wonders of nature and biodiversity, or transcendental religious experiences which may be experienced in some sacred place: none of these complicated and deep feelings can be replicated by virtual reality's direct, efficient, yet shallow information presentation. Perhaps even worse, we wonder if tourists in the future might value traveling only for gaining sensational and pleasant experiences, and whether travelling in search of something serious or grand will become a thing of the past.

Virtual reality seems to provoke a taste for technical vividness, and we are beginning to get used to accepting vivid information imposed on us and then acting on intuition, almost without a second thought. In the virtual reality context, enhanced vividness not only allows us to steer clear of deep thinking, but also makes us lose our ability to imagine since all the details have already been provided by the designer of the virtual reality tour. We are tamed to a world with vividness generated by technique, rather than our own experience. Virtual reality does provide us with tremendous knowledge, but this can be seen as direct and shallow knowledge, sometimes referred to as "flat" knowledge. But can virtual reality enhance the depth of our understanding about the world? This is questionable.

If we go a step further, we'll find that a tourist can visit the same place more than once, and get different experiences each time. As seasons change, the weather and even the sunlight in a particular area changes in very delicate ways. Visitors themselves are



changing, communities are changing - nothing remains the same, so it is worth appreciating things again and again. However, as most virtual tours are based on content scripts with limited factors that change, every time a visitor goes into the virtual environment, he/she will find the content more or less the same. So it is unlikely that he/she wants to involve themselves in the virtual tour repeatedly and can be expected to enjoy himself/herself to the same degree each time.

Stretching our imagination, perhaps someday, virtual traveling will become a standard part of our lifestyle. It is somewhat ironic that we could embrace a substitution and treat the authentic activity as old fashioned. Because of the satiation potential of virtual tours, future traveling patterns may be like “punching in” at work. We visit spots only to get something that proves we have been there. After hovering for a little while, we leave for the next destination. This traveling style makes traveling like a labor of Sisyphus: the journey may never end, and our deep-down needs may never be fulfilled.

#### **4.4. The loneliest time and space traveler**

The most dubious aspect of tourism is the isolation of tourists from local residents, and while they are in the same place, they are not connected in any genuine form of social relationship. Virtual reality worsens this problem, by immersing people in a simulated world, segmenting them from all others. We have to consider social presence as the weakest point of virtual reality, compared to the real world. A virtual reality tour excludes many of the social factors that sociologists believe are essential reasons for how people behave. So far, little attention has been paid to how we interact with local residents and other tourists, so virtual reality would be incapable of depicting how we ask for directions, how we imitate natives when praying, how we ask a vendor for a bargain, how tourists help each other during a trip, etc. Without these social actions and interactions, a journey could be seen as somewhat tasteless. When we recall Whittington’s depiction of travel in 2050 given at the beginning of this section, in the future, a family trip may simply be a symbol of the good old days. In a virtual reality tour, we may never enjoy a family get-together on a beach, talk with a stranger in a music bar, or bathe with people of different religions in the Heng river under a splendid sun. So, by this time, will the tourist who has the power to shuttle across space and time, in fact feel a little lonely and bored?

### **5. Conclusion**

What has virtual reality brought to tourists and tourism other than the various applications of this advanced information technology? This chapter re-examines the influences of virtual reality on tourists’ experiences.

In the first section, we connected the technological features of virtual reality such as presence, multi-senses, and imagination to tourists’ uses and gratification. We found that virtual reality enhances both the utility and hedonic experiences of tourists.

In the second section, we dug a little deeper to summarize four main aspects of tourism that are reshaped by virtual reality. Accessibility was innovatively improved with virtual

reality by simulating tourism sites so that tourists need little time and cost to gain access to them. Preservation of both sites and artifacts becomes more manageable and advanced because information can be stored and presented in a virtual reality world. Tourists' exploration activities also become more vivid and creative, and overall, no technique has yet provided the interactions and co-creating experiences that virtual reality affords. Pre-tour promotion is also largely changed since potential tourists can not only see the images or read introductions about the tourism destination, but also experience the virtual tour for themselves before they make a travel decision.

In the following two sections, we focused on the trickier aspects of virtual reality. Going through its various applications, we pointed out four critical problems about applying virtual reality in tourism, related to authenticity, temporality, satiation and tourist gaze. These problems show clear dilemmas when applying virtual reality in tourism, and also imply its tremendous destructive power. So, in the last section we expressed our concerns that a tourist may be confused by the loss of reality in a virtual tour, and we cannot cease to worry that if the tourist's journey becomes flat, one-off, full of fragments and without personal interaction, then is the meaning of tourism still as the same as before?

It is a post-modern issue to look for deconstructive and reconstructive roles of virtual reality in tourism. We ask if a virtual reality tour is a viable alternative, a substitute, or a subversion of tourism? How do we understand the reality presented by a virtual reality tour? How close to reality is a virtual reality tour? Virtual reality indeed overcomes the constraints of space and time, but not by going beyond the physical space and time, only by making some illusions as to the subjective perception of space and time in tourists' minds. However, it is not clear whether everyone will welcome this substitution or whether the distortion of space and time will prove too disruptive.

This era has witnessed many "grand narratives" being torn down. Will the grand and romantic tradition of tourism be the next? The content that virtual reality provides is no more than merchandise, and even traveling itself would be degraded to merchandise, if we discarded all of its poetic and intangible elements. Would the distortion of real space and time, and the separation of the individual from other human beings make the virtual tourist a homeless, lonely time and space traveler? Because of a lack of study in this area, we are unable to conclude the validity of virtual reality tours in this chapter. However, in our view, maintaining a research focus on this issue seems to be a sensible approach.

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