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The influence of virtual reality tourism on travel intentions: Enhancing travel decisions with immersive experiences

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ABSTRACT

The tourism sector has evolved due to the incorporation of virtual reality (VR) into deeply immersive travel experiences, altering traditional tourism practices and offerings. The study examines how VR tourism affects visitors' desires, brand truthfulness and travel ease. This study used qualitative methods by engaging fifteen participants in VR travel simulations and participating in semistructured interviews within a controlled environment. Research results indicate that users participating in VR tourism connect deeply with their minds while their dreams of exploration intensify along with reduced traditional travel barriers. The widespread adoption of VR faces significant obstacles due to the diverse preferences of users, high implementation costs, and the limited technological skills of potential travellers. The study demonstrates how virtual reality functions as an expansion pathway for conventional tourism activities, if industry actors can resolve the practical and sensory obstacles linked to its operational deployment.

KEYWORDS

virtual reality tourism, VR, immersive experience, perceived satisfaction, travel intentions, consumer behavior, travel decision making

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1. Introduction

Virtual reality (VR) advancements have influenced travel and tourism businesses due to continuous developments in artificial intelligence and data communication (Zheng et al., 2022). Through VR, consumers can have an intensive realtime experience that enables them to discover uncharted territories (Cruz-Neira et al., 2023). Current technological evolution has created VR tourism which delivers an attractive solution for non-physical travellers by handling conventional limitations such as travel budget restrictions, safety concerns and logistical challenges. The increasing popularity of VR creates substantial doubt about its comprehensive and intricate effects on travel consumer behaviour. Throughout the 1960s, Sutherland created the fundamental concepts of VR which enabled rich full sensory human engagements (Mazuryk & Gervautz, 1996) and today destination

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development organisations and policymakers employ extensive VR technologies to overcome travel barriers while simultaneously broadening their involvement in the sector (Gössling et al., 2021).

Nunez San Juan (2017) notes that the travel industry has experienced significant advancements due to the integration of VR and the web and innovation has led to a new era known as virtual tourism. The digital transformation of the travel industry is causing significant changes in how tourists behave (Disztinger et al., 2017; Heldal, 2007). Perry Hobson and Williams (1995) suggested that using VR to meet visitor's goals enhances the interaction between consumers and suppliers innovatively and is expected to enhance travel-related offerings and experiences significantly. According to Guttentag (2010), the growth of VR technology is expected to increase the number of applications and digital devices in the tourism industry. A notable recent development in this area is the Apple Vision Pro, which was introduced in June 2023, a device set to redefine the concept of VR in tourism. Research suggests that VR technology is a significant element employed to address problems and improve the organization of the tourist system (Gössling et al., 2021; Schiopu et al., 2021). While several studies reveal VR's ability to provide detailed tour reports and stimulate interest for destinations, little focus has been directed to how it impacts numerous demographic categories, especially travel decisions and motivations (Guttentag, 2010). However, issues resulting from excessively romanticized VR representations are typically not discussed in the literature. For example, users' expectations and happiness when traveling to these places in the real world may be influenced by deceptive representations (Gössling et al., 2021). Additionally, whereas money-related and security challenges are regularly seen as noteworthy barriers to travel, there is a need for observational research on how VR can address these issues among distinctive user groups (Schiopu et al., 2022). The majority of researchers have employed quantitative approaches to examine several facets of the VR tourism industry which, although robust, do not effectively capture the complex cognitive and affective nature of tourism experiences in VR tourism (Ahmed & da Silva Åkesson, 2022). Bridging these gaps will improve the comprehension of VR as a progressive resource in tourism and direct its economic impact.

This research explores the relationship between perceived authenticity of VR and its effect on travel choice. Additionally, it investigates the impact of VR tourism on decision making by considering emotional and cognitive engagement, overcoming physical and financial obstacles, along with how demographic and psychographic factors influence these aspects. Furthermore, the study highlights the positive effects of VR on the tourism industry. It also addresses the challenges and difficulties encountered in integrating VR into the travel decision-making process.

2. Literature review

Traveller decision-making and preferences are closely linked to the notions of value creation and value co-creation. Understanding and integrating the concept of "value offering" is essential for tourism businesses to effectively market their offerings and attract travellers (Gallarza & Saura, 2006) and the modern literature acknowledges the importance of VR applications in numerous industries in terms of value creation and new product development (Hacikara et al., 2022). Although it is evident from multiple studies that VR tourism has significant potential, as a relatively new field, multiple aspects of VR tourism need to be examined from an academic perspective to understand and predict the trends (Ahmed & da Silva Åkesson, 2022). A substantial body of research supports the idea that VR tourism has the potential to mitigate the travel barriers that conventional tourism frequently struggles to address (Phang & Kong, 2023; Schiopu et al., 2022). This technology allows busy tourists to enjoy quick escapism between a busy schedule, helps sustainability conscious travelers to be less worried about their carbon footprint, and assists the physically challenged to finally taste the excitement of mobility (Srifar, 2018). Several contemporary studies in the relevant field conducted by researchers are presented in Table 1.

The study explores the expansion of VR travel experiences which transcend financial barriers, physical disabilities, safety issues and other travel impediments. It investigates the ways VR functions as an obstacle breaker while revealing knowledge about visitor preferences affected by these elements. Several well-known publications regarding the current topic will be compared by the authors in the subsequent section.

2.1. Value in virtual reality tourism

Everyone has unique thoughts and perspectives which ultimately determine an individual's choice, opinion and judgment (Ahmed & da Silva Åkesson, 2022). The idea of "value" may be found included throughout diverse realms of knowledge, it has a conceptual and financial base, yet it exhibits a greater importance within the sphere of business. To obtain a complete grasp of the process of creating value, researchers need to investigate numerous categories and models associated with consumer value (Sánchez-Fernández et al., 2009).

Table 1. Contemporary studies on virtual reality (VR) travel intentions

Authors	Title	Methodology	Findings
de Lurdes Calisto and Sarkar (2024)	A systematic review of virtual reality in tourism and hospitality: The known and the paths to follow	Systematic review	VR tourism greatly enhances tourist participation, affects travel choices, and is a powerful marketing tool
Godovykh et al. (2022)	VR in tourism: A new call for virtual tourism experience amid and after the COVID-19 pandemic	Conceptual approach	VR tourism has a notably positive impact on the information quality, system functionality, technology acceptance, and affective involvement, shaping VR tourism experiences, which respectively influence tourists' attitudes and intentions towards destinations
Kim et al. (2022)	Virtual tours encourage intentions to travel and willingness to pay via spatial presence, enjoyment, and destination image	Experimental approach (n = 118)	VR tourism has a positive impact on tourists' travel intentions and willingness to pay by increasing enjoyment, spatial presence, and positive destination image
Lu et al. (2022)	The potential of virtual tourism in the recovery of tourism industry during the COVID-19 pandemic	Mixed-method approach (n = 1288)	VR tourism, guided by the theory of planned behavior, significantly influences people's destination choice and serves as a successful marketing strategy, contributing to sustainable tourism and offering experience opportunities that can facilitate the tourism industry's recovery during and after the COVID-19 pandemic
Oncioiu and Priescu (2022)	The use of virtual reality in tourism destinations as a tool to develop tourist behavior perspective	Exploratory study (n = 824)	VR destination marketing applications have the goal to create a specific image of a travel destination and present this to the outside world in a uniform and concerted manner
Merkx and Nawijn (2021)	Virtual reality tourism experiences: Addiction and isolation	Qualitative approach	VR tourism may make users more involved, it could also result in temporary fatigue and addiction symptoms

Source: authors.

Usually value has been seen as subjective, context-dependent and individualistic (Holbrook, 1999). The combination of sound, image and three-dimensional representation enhances the value of information in VR (Tussyadiah et al., 2018). As stated by Mohamed and Naby (2017), its use is already popular and used as a tool to add value in numerous areas, such as rides in amusement parks, interactive entertainment services and immersive motion films. The Thomas Cook Group exemplifies the use of VR as a marketing strategy to add value by promoting holiday destinations and attracting more travelers. The firm gives consumers the chance to travel by letting them use a VR tool to see the pyramids in Egypt, fly over Manhattan in a helicopter, or even go on a pretend vacation to Rhode Island via VR tourism offerings (Nunez San Juan, 2017).

Based on the research by Pestek and Sarvan (2021), as society's level of digital literacy rises, VR technology will advance and become more widely available. Customized products may be created with the unique capabilities of VR technology, significantly enhancing customer satisfaction with their acquisitions. Consumers may choose from an extensive array of virtual experiences.

2.2. Travel intentions in virtual reality tourism

Virtual reality technology can entice both emotional and physical reactions from a person (Macedonio et al., 2007; Riva et al., 2007) and enables consumers to achieve complete immersion in a virtual environment by effectively eliminating sensory input from the real world (Fox et al., 2009). Researchers found that when participants pay attention to the VR environment, they feel more present and in control, which positively affects how participant's post-VR perceptions of the tourist destination change (Wang et al., 2009). Virtual reality tourism now allows the physically impaired to be given virtual mobility to temporarily feel the sensation of moving to a popular destination or the economically insolvent to overcome the barrier of money and digitally visit expensive tourist attractions (Lu et al., 2022). Even destinations with ancient ruins and heritage sites can enhance their visitor engagement with immersive VR tools, leading to a better revisit ratio (Verma et al., 2022).

Moreover, tourists have found a sustainable alternative way (Sarkady et al., 2021) to travel to some destinations with political instability (Eid et al., 2019),

travel restrictions (Perry Hobson & Williams, 1995) and security issues (Yang et al., 2023). The use of VR tourism programs and the number of virtually-mapped destinations are rapidly increasing (Schiopu et al., 2022). Additionally, as new interactive technologies such as 360-degree video combined with VR headsets enable viewers to visualise and feel the products and services, they are creating new channels for advertising modalities and providing rich mediated experiences (Ahn & Bailenson, 2011; Feng et al., 2019; Yim et al., 2012).

2.3. Travel decisions in virtual reality tourism

Virtual reality tourism is presented as a sustainable, affordable, convenient and reliable option for travel (Yang et al., 2023). In the context of VR, 3D technology plays a crucial role in establishing a simulated environment and according to Guttentag (2010), it allows users to fully immerse themselves in the real three-dimensional visual experience of the real world. As a in the definition of VR, the use of 3D technology is crucial for establishing a simulated environment. The COVID-19 pandemic has changed the way travelers behave (Lu et al., 2022); they are more conscious about their physical safety, more alert about sustainable practices, and more careful about the perceived values of the tourism services they are willing to purchase (El-Said & Aziz, 2022; Lips, 2021; Sarkady et al., 2021). Most industry experts and academics have accepted VR technology as a positive addition to existing tourism services (Lee et al., 2020); a convenient alternative to save time, money and physical exhaustion (Malecki, 2017); and a form of experiencing luxurious destinations economically (i.e. underwater or space tourism) (Wang et al., 2009).

2.4. Psychological and cognitive frameworks in virtual reality tourism

According to the uses and gratifications theory (UGT), people actively seek useful ways to enjoy leisure activities, regardless of whether they provide entertainment, informational value or an opportunity to escape reality (Katz et al., 1973). Travellers use modern digital technologies in VR tourism to discover locations, overcome budgetary or physical limitations, or gain immersive pre-tour knowledge. Studies indicate that VR can deliver immersive, sensory-rich landscapes to fulfil the need to explore (Tussyadiah et al., 2018). However, UGT also identifies a potential alignment gap between expectations that consumers build through VR and their actual tour experiences, which can potentially lead to dissatisfaction (Verma et al., 2022).

According to the perception information processing (PIP) model, user involvement and pride are strongly influenced by perceived realism. Perceived authenticity and spatial presence powerfully influence users' emotional responses towards approximate locations in VR tourism (Gössling et al., 2021). For example, consumers are more likely to increase positive intentions when VR environments are representative of real-world factors like weather, population trends or cultural sensitivities (Tussyadiah et al., 2018). On the other hand, excessively idealized representations also widen the difference between virtual and real global accounts, resulting in dissonance and reduced satisfaction (Godovykh et al., 2022).

3. Methodology

3.1. Research approach

A qualitative research method is critical to understanding how people talk and what emotional standards and perspectives they have because it describes how people express their world knowledge (Bryman, 2016). For testing the causal influences of VR tourism experience on travel intentions, this study drew up a framework to integrate qualitative outcomes. From the application of semi-structured interviews within constrained laboratory settings, this study makes an effort to account for the richness of experiences of users coupled with nuanced subtleties in emotional engagements and ultimately present an enhanced richer conception of how VR experience influences the decision making process (Choi et al., 2024; Lips, 2021). This method is consistent with a number of recent empirical studies where research has concentrated on the same method by giving more weight to the assessment of qualitative traveller feedback as a key factor (Agag & El-Masry, 2017; Nie et al., 2020). Exploratory research deals with phenomena or behaviors that lie 'in the cracks', analyzing them from different ends. This search-oriented approach coupled with elements of both inductive and deductive reasoning was superior to earlier practices in its academic scrutiny of the data collected (Stylos et al., 2021). Taking an exhaustive examination of most components, the authors have concluded that an exploratory method would be most advantageous as a method of experimentation utilizing VR technology (Lee et al., 2020; Wang et al., 2024).

3.2. Study area, sample size and technique

Cautious examination of the population parameters is required in order to determine valid examples for significance testing (Silverman, 2021). According to Liat et al. (2017), a specific population should use a specific measuring instrument. The aim of this research is to

investigate planned travel in a research context of simulated control where the participants used VR technology to navigate VR travel. A random sampling procedure was followed to select fifteen participants from the population who were then approached for participation in the survey. Semi-structured interviews were conducted with all the participants, where each one was given a different set of questions so that accurate data could be collected from each. A diverse group of challenging and meticulous participants completed the questionnaire with a diverse age group and travel patterns.

The objective of this study was to investigate the process of planned travel in a systematic research environment where participants traveled through VR technology in a simulated environment. The authors used random sampling to select fifteen participants from the cohort and requested them to participate in the survey. The subjects were interviewed via semi-structured interviews where each one had a unique set of questions in order to ensure that accurate information was obtained from each individual. A range of participants completed the questionnaire and there was a great disparity of age and travel desires (Kallio et al., 2016).

Participants in this study were interviewed one-on-one and varied from 20 to 40 minutes. They all participated in VR explorations in calm, controlled environments on the Helsingborg and Lund City campuses of Lund University in Sweden, which helped to reduce the impact of outside stresses. The authors of this study scheduled each consultation in December, starting at 10:00 am and ending at 2:00 pm, in order to maintain consistency. In addition, the authors promised to build a rational structure that would allow VR simulations to feature all aspects of travel, including changes in energy levels and emotional states at different points. In this controlled laboratory study, OCULUS Quest 2 VR headsets were utilised which are now very user-friendly, requiring only a small amount of storage space and an internet connection (Ahmed & da Silva Åkesson, 2022).

3.3. Sampling and population

To get an accurate representation for this research, the participants' demographic characteristics had to be identified (Alvi, 2016). This study utilised a purposive sampling method, choosing participants based on their specific experiences rather than through random selection. Table 2 presents the demographic profiles of the 15 participants, encompassing their age, gender, nationality, and occupation. Participants of this study represented various nationalities, aged 20 to 50, and came from a broad spectrum of professional backgrounds.

Table 2. Demographic information

No.	Name	Age	Gender	Nationality	Occupation
1.	Jihad	40	M	Bangladesh	Private service
2.	Smith	34	M	Brazil	Programmer
3.	Josephine	24	F	Australia	Student
4.	Liam	49	M	UK	Teacher
5.	Nancy	36	F	China	Fitness trainer
6.	Karlos	43	M	Austria	Game developer
7.	Diana	25	F	Russian	Student
8.	Edward	23	M	Germany	Web developer
9.	Dinesh	29	M	India	Teacher
10.	Bravo	30	M	France	Athlete
11.	Dipika	26	F	India	Air host
12.	Imran	25	M	Pakistan	Content creator
13.	Rachael	24	F	USA	Consulting coordinator
14.	Jabin	30	F	Bangladesh	Entrepreneur
15.	Vinicius	32	M	Brazil	Businessman

Source: authors.

Table 3 presents a comprehensive overview of each participant's virtual reality experience, encompassing the type of content, duration of the session, and classification within groups. The participants encompassed a diverse array of nationalities, ranging in age from 20 to 50 years, and hailed from a wide variety of professional backgrounds. The interview was a customised VR tourism session lasting 20 to 40 minutes for each participant, adapted to their specific travel preferences. Among these activities were scuba diving, cultural site visits and outdoor landscape exploration. Semi-structured interviews were performed to gather qualitative data regarding emotional engagement, perceived realism and alterations in travel preferences following the VR experience.

To mitigate potential bias, participants were categorised into two distinct groups according to their familiarity with VR technology: VR familiar and VR naive. The VR session began with an introduction that covered the basics of VR before the 20–40 minute encounter. The authors meticulously developed a protocol for data collection that all participants followed in order to guarantee data comparability. Before the study, a pre-screening questionnaire to assess their familiarity with VR technology and previous travel experiences was completed. Seven

Table 3. Virtual reality (VR) experience details of the participants

No.	Name	Category	Content of VR experience	VR experience duration	Time of interview	Date
1.	Jihad	VR-familiar	Monkey and elephant safari	30 min	12 pm–2 pm	15/12/2023
2.	Smith	VR-naive	Jungle in South America and safari in Indonesia	30 min	10 am–12 pm	15/12/2023
3.	Josephine	VR-naive	Dive in ocean	20 min	10 am–12 pm	20/12/2023
4.	Liam	VR-naive	Monkey safari and nightlife in Tokyo	40 min	10 am–12 pm	21/12/2013
5.	Nancy	VR-familiar	Antarctic experience and Machu Picchu	40 min	12 pm–2 pm	23/12/2023
6.	Karlos	VR-familiar	Theme park and museum tour	40 min	12 pm–2 pm	24/12/2023
7.	Diana	VR-naive	Sky diving	20 min	10 am–12 pm	13/12/2023
8.	Edward	VR-familiar	Dive in ocean	20 min	12 pm–2 pm	15/12/2023
9.	Dinesh	VR-familiar	VR tour in Rome	40 min	12 pm–2 pm	23/12/2023
10.	Bravo	VR-familiar	Amazon jungle	25 min	12 pm–2 pm	25/12/2023
11.	Dipika	VR-naive	Safari in Borneo and visit Kenya Maasai tribe	20 min	10 am–12 pm	25/12/2023
12.	Imran	VR-familiar	Diving with sharks in the ocean	20 min	12 pm–2 pm	26/12/2023
13.	Rachael	VR-naive	Space tour	20 min	10 am–12 pm	29/12/2023
14.	Jabin	VR-familiar	Beach in Bali to relax and Indonesian jungle	20 min	12 pm–2 pm	24/12/2023
15.	Vinicius	VR-familiar	Monkey and elephant safari	20 min	12 pm–2 pm	25/12/2023

Source: authors.

participants were novices, while eight had previous experience with VR.

Additionally, six participants had travelled in the preceding three months, whereas nine had not travelled for over a year. The selection process meticulously assessed participant attributes. Those lacking prior travel experience were asked about their present travel objectives. Individuals who had not travelled recently were asked about their physical travel challenges and their travel aspirations. This study examined whether VR tourism could serve as a substitute or complement to physical travel across diverse demographic groups. By incorporating these factors we were able to mitigate participants' prior exposure to VR and travel experiences.

3.4. Data collection

This exploratory study employed semi-structured interviews to facilitate open dialogue between respondents and interviewers, trying to better understand the beliefs and attitudes of the participants (Smith, 1995). We analysed their initial and subsequent travel plans, post-VR experience, through interviews designed to investigate their emotional and cognitive responses. The authors conducted a thematic analysis of the responses, uncovering enduring patterns and unique findings.

During the experiment, the interviewers posed icebreaker questions to participants and gathered their general perspectives on the concept of VR tourism. The interviewers subsequently provided the participants with VR headsets and directed them to choose an application that offers a VR tourism experience for a duration of 20 to 40 minutes. This step guaranteed a uniform approach throughout the data collection process.

The final phase of data collection involved conducting semi-structured interviews, which were recorded in audio format and lasted between 30 and 40 minutes. For conducting a thematic analysis for this article we used Kallio et al.'s (2016) methodology.

Moreover, the interview transcripts were examined several times to ensure their precision and completeness. Reviewing helped the researchers to identify themes; systematic classification, organisation and interconnection of responses exposed relationships among them. The investigation and debate were meticulously considered to reach unambiguous, theoretically supported results enabled by the analysis (Kallio et al., 2016). The advantage of this analytical approach is that it not only made the findings more valid but also gave more insight into recurring patterns in the data. The researchers used a rigorous framework to close the gap between theory and practice in a way that offers useful guidance for future studies in the area.

4. Analysis of results

4.1. Enhancing emotional attachment via virtual reality experiences

Virtual tourism initiatives have great potential to increase travel intentions by providing realistic, captivating and highly detailed simulations of different locations. Most participants had indicated that they had formed deep emotional connections to their virtual experiences. One respondent of this study, Mr Smith, expressed:

> When the video started, I didn't think much of it. But after a while, I felt I was in the jungle. A bird flew near my hand, and I observed a deer in the distance. The tiger roared. These viewing experiences were truly incredible.

Through VR systems users can experience something so authentic that it modifies their itinerary planning. Research conducted by Lee et al. (2020) shows that implementing immersive features within travel experience creates a significant impact on consumer travel judgment and decision-making processes. Through realistic simulations, destinations efficiently capture user attention which leads to visits to real locations. Diana took part in the study with considerable interest in diving activities because she believed the VR diving simulation was incredibly awesome. Diana shared with us,

> After enjoying VR travel, I fell in love with skydiving. Now, I want to have the experience of skydiving in real life. I want to spot the difference between these two thrilling experiences.

The findings in this article align with Tussyadiah et al. (2018), which proves that VR duplicates spatial presence and triggers an emotional involvement that results in modified travel destination impressions. Virtual reality serves as an exceptional instrument for travel planning because it effectively establishes powerful emotional connections. Study participants detected variations between VR and actual reality which indicates further development is needed in the VR system of audio audiovisual capabilities to enhance simulated experiences.

4.2. Diverging perspectives on revisiting physical destinations after virtual reality experiences

The study by Perry Hobson and Williams (1995) investigated how VR could discourage actual travel by its affect on visitors. One of the participants, Nancy, had a VR viewing of Machu Picchu, a location she had once physically visited. She claimed that virtually visiting a place that one has previously been to is a new kind of experience that alters your preconception of a destination. She noted that she could virtually enjoy every scene with all the time needed, free from time restrictions and physical labour. During her previous physical tour, the guide had unfortunately limited her observation time because they were part of a group tour with a fixed schedule. She also expressed her satisfaction with not needing to pay multiple tolls for entry fees. She was happy with the fact that, just by paying a nominal fee to subscribe, she could access these VR tourism programs as much as possible. Nancy commented,

> I felt myself instantly pulled back in time. I once more gazed upon the Maya civilisation. Helped me to forget that I was surrounded by virtual reality. After that, I began to doubt the reason behind in-person travelling. It brings so much pressure and stress. Virtual reality vacations seem to be a lot more practical and immersive way to relax. Virtual reality destinations provide a more personalized experience.

Another participant, Rachael, lost interest in revisiting a place physically after having experienced it virtually. She remarked,

> Virtual reality drives obsession in you. You will not be motivated to physically visit the same location again once you start VR travelling. I will never be rich enough to pay for the special trips I take in VR in real life. Virtual reality will be my most chosen form of travel if it develops to let me experience food and touch.

Significantly, there were no discernible variations between the real and virtual experiences in terms of visitors' emotional involvement, spatial presence or behavioral intention (Godovykh et al., 2022).

4.3. Threats caused by idealized destination images

While VR tourism has its benefits, it can give travelers the wrong idea of what the real places are like by showing them an over-the-top picture of a clean, conflict-free environment. One participant, Jabin, who experienced a crowded market in VR, said,

> In VR, the market was colorful and calm, but I've been to real markets and they're often chaotic and noisy.

Similarly, a participant, Vinicius, who toured a beach destination in VR, noted,

> The beach I visited in VR looked pristine and empty, but these beaches are usually crowded with tourists and vendors.

Most of these circumstances depend on the challenges they encounter, consequently referred to as well-designed operations which are mostly related to logistic constraints, environmental damage or the problems that underprivileged communities experience. These difficulties could conceal the intended advantages and cause opposition from society and increase governmental investigation. Overcoming these obstacles calls for a plan that incorporates the need to involve stakeholders and apply sustainable practices. According to Gössling et al. (2021), consumers are creating irrational expectations that could have adverse consequences on user experience. Elements that better correlate VR models to their real world equivalents include realistic elements (e.g. seasonal changes, subtleties of cultural settings).

4.4. Addressing barriers to physical travel

Lips (2021) states that when someone cannot go from one place to another, it creates a bodily barrier for them. Researchers have identified different causes that can lead to this condition, such as advanced age (Srifar, 2018), physical impairments that affect motor function, intellectual disability (Perry Hobson & Williams, 1995) and more. Imran and Bravo love adventure tourism, both of them have some physical barriers, but VR provided a real experience of their intended destination through physical barriers. Bravo commented,

> The diversity of life in the Amazon jungle is quite amazing. That's somewhere I have always wanted to see. But problems with my legs have had me limited to a wheelchair. I hence never tried to visit the Amazon rainforest. But VR helped me to make my unreachable travel possible.

On this, another participant, Imran shared,

> Virtual reality diving experience, sharks were humming around me. Since I'm not a good swimmer and I cannot go underwater, it was like I was diving into the ocean, Something I could never really do.

Virtual reality offers a safe and accessible alternative to experiencing the underwater world. As a result, VR travel experiences provide a variety of benefits to users, including minimalistic or budget-friendly tours, ethical and sustainable travel alternative options, and easy access to exclusive and futuristic tourism experiences (Verma et al., 2022). However, contributors highlighted a lack of utilitarian aspects in VR encounters. Imran additionally said,

> Virtual reality is quite good for adventure. However, if a VR advertisement is used to advertise a location, it will not equip you for real-world travel challenges including travel delays, overcrowding or weather-related issues.

4.5. Addressing financial and security challenges with virtual reality tourism

Many times, financial limits prevent travellers from reaching their intended destination. On the contrary, with VR travel, all you need is a VR device, a subscription to the VR travelling app, and a nominal fee to keep enjoying the program. On this note, Dinesh said,

> Given my financial circumstances, I cannot afford some of the travel sites, including the Opera House, Eiffel Tower, etc. But with VR tools, I could experience what it's like. And, I only had to pay once. In VR, I could visit it several times or assist my friends in doing so.

Another participant, Jihad, left a noteworthy comment,

> I have a strong passion for travelling. Although I want to travel, I am unable to since I cannot manage leave from work and the required travel expenses. But virtual reality allowed me to travel anywhere, anytime.

For Dinesh and Jihad, the primary advantages of VR travel are its cost-effectiveness and convenience relative to conventional tourism. By doing so, VR tourism is mitigating the financial barriers and time constraints associated with traditional travel activities (Guttentag, 2010).

Additionally, a security barrier is another important block for traditional travel activities. Virtual reality tourism is a secure and innovative alternative for people who are afraid for their safety while visiting destinations with security issues (Schiopu et al., 2022). In some areas, VR may resolve safety concerns, especially for those who visit countries that are perceived to have a security threat, for example, a participant, Dipika, who refuses to travel to non-European countries out of safety concerns. Dipika revealed,

> Ladakh, on the disputed China-India border, is one of the world's most beautiful places. But unfortunately, political tension is always unbearable for that destination. This makes me afraid to visit. But virtual reality gave me a real experience. Virtual reality made walking on Ladakh's stunning slopes seem real. I felt safe and the travelling experience felt authentic.

Virtual reality allows insecure tourists like Dipika to feel secure about virtually visiting unsafe destinations. This allows travelers to discover and enjoy new destinations from the safety of their own homes.

4.6. Theoretical perspectives on virtual reality tourism

Holbrook argues that consumer value theory (CVT) emphasizes consumers' hedonic and affective experience and that VR tourism can enhance the experience of traveling by offering the tourist previously unknown vague and weird experiences (Holbrook, 1999; Sánchez-Fernández et al., 2009). As a result, it can help people form strong emotional connections with destinations and experience them in ways that traditional tourism cannot. As a result, it may foster strong user-generated emotional connections and assist in the creation and co-creation of value. Edward, one of the participants, for instance, stated his ideas as follows:

> The VR trip did not fully prepare me for the extreme weather or the other dangers I might face in the deep sea. In VR, when I used VR to dive into the deep sea, I wasn't in real danger. There was no thrill of being chased by a shark or feeling the pressure of the water. Still, the trip offered me a taste of what visiting that location is like. No other technology available today can produce such an immersive impression. Virtual reality is a great way to explore new locations before really visiting them since everything felt extremely real and engaging.

Virtual reality tourism cannot fully replicate real-life events or provide visitors with accurate information about the physical surroundings of the destination. This is crucial for experience education and the ability of VR tourism activities to influence tourist decision making (Tussyadiah et al., 2018). This enables us to underline the concept that non-public goals commonly direct our media intake, but the uses and gratifications theory (UGT) holds that when people examine their virtual experiences in reality, false expectations could possibly create unhappiness.

Josephine, a participant in this study, stated,

> With virtual reality, I can live out fantasies that would otherwise be out of my reach. The technology helped me to break free from my boring daily life. The virtual world provided me with an escape, allowing me to enter completely new environments through digital means. Even though I knew it was fake, the simulated experience felt real enough to satisfy my curiosity about the dream destination for a short time. My VR experience does not compare to actual travel because it lacks the natural uncertainties of the outdoors, the distinct sensations of different climates, and spontaneous encounters with locals. Virtual reality creates such a convincing illusion that users have inflated expectations for their real-life travel experiences.

Furthermore, the perception-information-processing (PIP) framework clarifies user interaction with VR material. The great emotional involvement and high degree of participation of the participants draws attention to the relevance of their perspective of reality. Another participant, Liam, said,

> The VR experience was so immersive that I lost awareness of my actual surroundings; a small space like my home can cause me to fall or cause accidents. Especially during the safari travel, I almost felt the urge to start running after encountering a snake.

However, PIP theory warns that expecting too much idealised realism will only increase dissatisfaction with the gap between perceived expectation and experience. Such issues could be resolved by integrating immersive design with realistic representations (Tussyadiah et al., 2018). Technological developments in the future could possibly solve these flaws and removing them will increase the demand for VR tourism activities as they will offer more value.

4.7. Consequences for sustainable tourism promotion

Virtual reality producers and tourism stakeholders must set realistic expectations by creating detailed representations of their destinations. Virtual reality tourism activities can accomplish more realism and authenticity if they address environmental and cultural constraints, incorporate tools to foster social connections and develop technology to experience smell and taste in the VR world. The enhanced sensory and social aspects of VR systems will surpass simple visual experiences to provide a real alternative to the traditional travel experience (Beck et al., 2019). According to Gössling et al. (2021), the problem is that we provide overly appealing information without ensuring a balanced level of detail in order to set reasonable expectations for users and encourage responsible and sustainable travel activities. Karlos, one participant explains,

> Although VR travel is fascinating, it will never be my first choice. I still want to hold hands, eat great food, and fully engage in social interactions with total strangers during my travels. I understand that traditional tourism contributes to environmental degradation, but no significant efforts are being made by the tourism stakeholders to address it, and the alternatives simply do not feel as fulfilling. Maybe the day VR can completely replicate these rich sensory experiences will be the day people start to move away from mass tourism, so lessening the demand on natural sites.

Participants believe that VR tourism cannot replicate all of the sensory experiences found in traditional tourism. The current state of technology

allows for immersive VR experiences that provide users with limited previews of the actual destination travel experience. The system cannot deliver an authentic experience of human interaction and cultural exchange and the opportunity to taste local foods while sharing handshakes. The study results highlight the importance of accurate displays in fostering knowledge and facilitating more responsible and ethical travel decisions. Virtual reality tourism developers aim to integrate artificial intelligence systems into their experiences because they want to establish authentic environmental and cultural elements to achieve better virtual immersion levels. Virtual reality technology promises to develop complete sensory duplicates of conventional tourism that might provide an environmentally-friendly substitute in the future.

5. Findings and discussion

Virtual reality tourism has the potential to achieve a traveler's travel goals through vivid, engaging and immersive simulations of different destinations. This study found that VR can create a sense of spatial presence and elicit emotional engagement and this increases perceptions of tourist destinations (Tussyadiah et al., 2018). Most of the participants stated that they made strong emotional connections with their virtual visits which, as a result, enhanced their desire to visit these places in real life. They were linked to the sensation of being immersed in natural landscapes or historical sites, and many were motivated to address that excitement, to develop a desire to visit them and enjoy being immersed in those places in person. Having a positive outlook on VR is important, but it is not enough. Visitors who have an overly romanticised view of virtual environments' destinations may be disappointed when these destinations do not meet their expectations. On this note, Edward explains,

> Virtual reality creates the illusion of a utopian destination which can leave people feeling disconnected from reality. While virtual travel is certainly enjoyable, we should not celebrate it without considering the larger implications. Should technology and corporate interests control every aspect of our lives? What will happen to the individuals and families whose livelihoods rely on the tourism industry? Before embracing VR as a substitute for real travel, we must critically assess the potential economic and social consequences. I was enjoying the VR experiences, but in the back of my mind I was also thinking these things.

The mismatch between VR tourism content and realistic depictions of destinations, requires VR designers and tourism promoters to establish proper balances between real and virtual authenticity. While immersive, VR tourism can present sanitised, conflict-free versions of many locations and consequently creating a false sense of safety and security. Particularly in areas experiencing political unrest, economic difficulty or overpopulation, such images can prevent visitors from fully appreciating the actual sociopolitical and environmental conditions. According to Beck et al. (2019), these types of misinterpretations create unrealistic expectations that create perceptions different from real-world travel realities. Gössling et al. (2021) suggest that VR travel presents promising benefits for digital tourism but also poses significant risks that can lead to the development of unrealistic and unsustainable destination images. Without proper management of this idealised view, tourism decision makers may be swayed to engage in travel activities that have adverse effects for visitors and local communities. Nancy shared similar emotions during her VR travel to Machu Picchu, a well-known ancient site:

> The process of actually visiting destinations can become quite chaotic. To reach the site, you must travel to remote areas, take time off work, spend your savings and confront security issues. However, even after going through all that, your tour operator might ruin the trip by changing the itinerary, your ticket might be cancelled or you might fall sick during your whole trip. Popular destinations are always busy and provide an unwelcoming vibe for introverts like me. But destinations in VR seem very calm and relaxing; I could hear the history lessons given by the guide, I could see the historical ruins in their actual forms, and I could even zoom in and out to observe the artefacts with all the time in the world and it was really cheap.

Successful development of VR tourism depends on accurate and unique depictions of particular places. Holbrook's theory of consumer value helps us to provide a useful framework for understanding how individuals create various degrees of meaning during their virtual travel contacts. Developers who set VR tourism to reflect cultural aspects and social dynamics together with environmental elements will create an authentic experience providing consumers with more meaningful and immersive satisfaction. In this context, one of our respondents, Dipika explains;

> The VR safari tour was incredibly enjoyable and unique, but it did not fully replicate a real safari experience. I didn't have any previous safari experience to compare to. In VR tourism, I did not have to face real world issues like intense heat, unpredictable wildlife, or large crowds. Virtual reality excels in simulating images and sounds, but it lacks the physical and sensory immersion that provides real travel with such power. Still, I think

> VR has a lot of potential if it can make its programs include more realistic cultural and environmental elements. Although it might never fully supplant more conventional forms of travel, it can be a valuable asset when it comes to immersive learning and vacation preparation.

People acquire different perceptions of VR experiences and reality, giving the impression that VR provides a more polished presentation than what exists in real life. Due to this issue, VR developers and tourism stakeholders should incorporate genuine dynamic components into their simulations. As Figure 1 shows, VR tourism offers two-fold advantages that simultaneously improve tourism experiences and solve industry challenges.

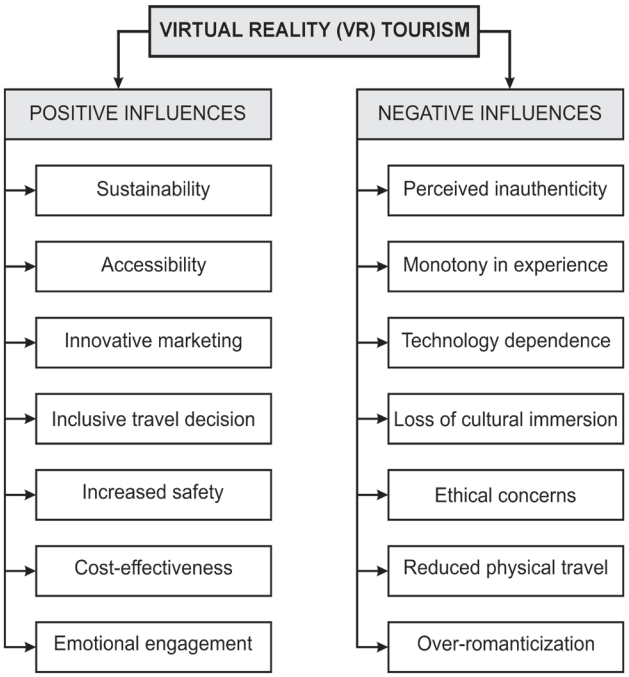

Figure 1. Positive and negative influences of virtual reality tourism
Source: adapted from study findings

To create VR destinations that provide authentic virtual travel experiences, tourism companies should invest more in research and development sector to develop and integrate new sensory elements, imitation of seasons and cultural diversity. Both Beck et al. (2019) and Gössling et al. (2021) agree that future VR advancements should aim for more realism by balancing idealised and realistic portrayals. Virtual reality tourism, by combining these components, allows travellers to gain a comprehensive understanding of destinations and set appropriate expectations for actual visits. The improvement of VR credibility by this method will result in environmentally-friendly, informed travel methods.

6. Conclusions

The findings of this study suggest that tour intentions can be modified through virtual tourism due to its appealing characteristics, psychological connection and user-friendly interaction. The results demonstrate that VR tourism fosters deep emotional connections and this has the potential to encourage people to travel. For humans with financial difficulties, protection issues or bodily handicaps, it provides safe, less costly alternatives, appreciably lowering their travel limitations. Participants in the semi-structured interviews indicated that their desire to visit those sites in real life grew after seeing them virtually.

Virtual reality provides a powerful and inclusive way for people who cannot travel due to economic or physical barriers to experience the world; it makes travel accessible to everyone. This study highlights the opportunity for VR to enhance sustainable tourism techniques by minimising the call for physical visits, even if they are a pleasurable desire for exploration and enjoyment. This underscores the need to create VR content that blends compelling observation with practical descriptions, thereby aligning purchasers' expectations with reality. These findings show that VR tourism is a significant addition to the traditional one, with the potential to improve options and expand the tourism industry's reach to underserved demographic groups. By constantly improving VR reviews and addressing identified challenges, stakeholders can leverage their ability to act as a long-term and influential asset for the future of tourism.

In future studies, it will be necessary to amplify those findings by addressing the challenges that are currently being faced and investigating every element of VR tourism. Longitudinal research can be conducted to evaluate destination loyalty, tour frequency and traveller satisfaction to review the evolution of VR influence on travellers. Such an approach will enrich our understanding of user engagement and provide insights into the evolving preferences of travellers in the digital age. By exploring these dynamics, researchers can develop more effective VR experiences that cater to the needs and expectations of diverse audiences.

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