Implementation of Virtual Reality to Explore a Virtual Tourist Destination

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Abstract **– The article investigates the influence of virtual reality on users' minds through the interaction when viewing a virtual tourist destination through virtual reality goggles. Users feel as if they are physically present in the tourist destination thanks to the 360-degree view and the surrounding sound. Virtual reality redefines the way tourist destinations are experienced and explored, offering an engaging and exciting alternative to traditional tourism through advanced technology that promotes immersion, education and personalization. Visitors can move freely through the virtual environment and explore every corner at their own pace.**

Virtual tourism has emerged as an innovative alternative to explore tourist destinations and experiences through digital technologies, especially virtual reality (VR) and reality. Virtual tourism not only offers a new way of discovering the world, but also contributes to the promotion of destinations, the preservation of cultural heritage and the inclusion of people with disabilities or travel limitations.

Keywords **– Virtual reality, immersive, virtual tourism, glasses, virtual helmet.**

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1. Introduction

Over the years, the tourism sector has undergone an evolution, transforming into one of the most relevant and active industries. It does not only promote the economy of tourist areas on a national and international scale but also fosters cultural exchange and connections between individuals from different nations. In Peru, tourism is not only a significant source of income but also crucial for promoting sustainable development and social inclusion. As users seek authentic and sustainable experiences, the tourism sector adapts by offering a variety of options that enrich the lives of those involved. The evolution of the tourism sector has been characterized by significant transformations driven by technological advancements; the way people plan, experience, and share their trips has changed radically. As tourism adapts to new technologies, trends that promote sustainability and cultural connection emerge, reshaping the future of the sector. In an increasingly digital world, virtual tourist destinations have emerged as an innovative way to explore and enjoy the planet's most iconic locations without leaving home. This experience allows users to immerse themselves in the culture, history, and natural wonders of different places through technology.

Virtual reality is experiencing significant growth today, particularly in the tourism sector, where it allows users to virtually visit certain archaeological sites without having to travel physically. 360-degree videos and immersive experiences enable users to enjoy a pleasant experience immersed in a simulated environment [1]. Virtual tourism is rapidly gaining importance in contemporary tourism research; existing studies on eye-tracking rarely classify virtual tourists into segments based on interests, excluding the key role of available visual templates and related attention cues. "Recent advancements in immersive technology, including virtual reality (VR) and the metaverse, have transformed the travel industry by enabling virtual travel, which has gained popularity due to the Covid-19 pandemic and the opportunities it presents for tourism" [2].

Virtual reality tourism is a new concept that uses 3D technology to create immersive travel experiences using movement, sound, and visual cues. In an immersive VR environment, consumers can experience a sense of awe that is different from traditional travel experiences. Virtual reality tourism (VR), is a novel concept that uses 3D technology to create immersive travel experiences with visual, motion, and audio cues, has developed amidst the COVID-19 pandemic. Virtual reality as an educational and awareness tool offers a promising avenue for tourists to adopt sustainable practices, reducing the physical impact on sensitive environments [3].

Studies have addressed the topic of virtual reality, focusing on examining the validity of using virtual reality in consumer behavior research and evaluating its effectiveness as a tool to change consumer behavior across various domains of research. The results were favorable, indicating that virtual reality is a useful tool in society and enhances user satisfaction through interaction with virtual reality [4]. There are also studies related to virtual tourism that trace the evolution of virtual and augmented reality in tourism over time. Authors argue that virtual reality allows consumers to experience various forms of reality in an immersive and engaging way, using a head-mounted stereoscopic display (HMD) that distracts users from their surroundings and provides visual and auditory stimuli that make them feel comfortable in a completely different environment (remote presence). In augmented reality (AR), tourists who observe the world also see virtual objects overlaid onto the real world. One study focuses on humanizing the tourism experience through virtual and augmented reality, noting that the interaction between virtual reality elements, such as smartphones, is transforming the tourist experience. Virtual tourism expands destination tourism opportunities using marketing strategies tailored to each segment. Currently, immersive digital environments based on AR/VR technology are being used to enhance tourist experiences, improving the traveler's experience before, during, and after the trip.

These technologies also create a new tourism model: virtual tourism (VT), based on real tourist landscapes but in an immersive online environment. From the consumer perspective, AR/VR can make travel accessible to people with physical, financial, time, and other limitations; virtual reality technology (VR) goes beyond physical limitations by immersing users in simulated environments using computer-generated visual, auditory, and sensory stimuli. Virtual reality technology is widely used in museums, providing visitors with a rich experience that differs from traditional exhibition methods [5], [6], [7].

The impact of virtual reality (VR) glasses on a tourism product was studied to achieve a high degree of internal validity. The laboratory experiment method allowed limited control over independent, dependent, moderating, and confounding variables. To achieve the highest level of realism in terms of both real and experimental events and to allow the generalization of findings, VR tourism products were selected for display in a commercial VR application. It was demonstrated that virtual reality has a significant impact on the promotion and marketing of tourist destinations [8]. Websites have adopted new attractive forms, such as virtual reality, to offer products and services to individual users in the context of tourism, due to recent uncertainty in the service sector. Based on the innovation theory of domain segmentation and user involvement in person-computer interaction, the results from a survey sample of visitor responses show that user involvement, including aesthetic appeal, focused attention, perceived usability, and reward experience, enhances attitudes toward virtual reality. Product innovation positively moderates the relationship between attitudes toward virtual reality and intentions to take in-person tours [9]. Despite technological advances, the adoption of new innovations in the field of virtual reality to explore a tourist destination has been slow due to the digital divide, where there is limited user interaction and little influence regarding virtual reality in tourism. Although virtual tourism has existed for over a decade, most tourists are still unaware of it. Discussions of virtual tourism in the literature to date have focused on everyday situations rather than crises. Due to the clear differences between virtual travel and in-person travel, research has focused on their comparison, their influence on decision-making, evaluations, and tourist behavior. According to the results, most tourists showed a positive sentiment toward virtual tourism during the COVID-19 pandemic, where interacting with tourism virtually was seen as beneficial [10].

Virtual reality can be used to enhance the tourism experience. In the tourism sector, the caravan generates a virtual environment through the provision of synthetic or 360-degree captured content from real life, with a caravan system that allows virtual tourism experiences that stimulate the visual sense and possibly other senses of the user for purposes of planning, management, and marketing [11].

The objective of this research was to analyze the influence that virtual reality has on users' minds and the satisfaction it generates in both Generation “Z” and Generation “Y,” through their interaction with virtual tourism and the benefits that virtual reality provides as an alternative way to enjoy tourism through VR glasses without physically traveling.

For this, a virtual tourist destination, the Historic Sanctuary of Machu Picchu in 360 degrees, was selected so that users could visualize and explore, through VR glasses and headset, a beautiful panoramic view of nature. The Casa del Guardián de la Roca Funeraria, Intihuatana, Temple of the Three Windows, and Temple of the Sun were also displayed, projected from a smartphone onto the VR glasses.

Virtual reality can be defined as an interactive, digitally created environment that allows participants to experience a simulated environment using a VR HMD device. Three-dimensional worlds are created by combining visual elements, kinematics, and sounds so that users can feel real objects. The travel and tourism industry are one of the first to harness the potential of virtual reality providing experiences such as interplanetary travel, fantasy worlds, sporting events, and large theme parks. Virtual reality travel has been shown to reduce customer anxiety and risk by helping them familiarize themselves with destinations [12], [13].

To this end, several research articles from different authors regarding virtual reality and virtual tourism were reviewed. Based on a consumer journey with new steps being developed, anticipating the growing incorporation of virtual reality in this field, this review also provides future research directions and implications for management. This bibliographic research aims to strengthen the current theoretical framework, which will serve as support for future research related to child and neonatal vaccination [14].

The structure of the paper is divided as follows: Phase 2 describes the methodology used to review the available evidence. Phase 3 is dedicated to the analysis of the results obtained from the proposed questions. In phase 4, the discussion and conclusions reached are presented. Finally, in phase 5, the identified limitations are outlined, and possible directions for future research are suggested.

2. Methodology

The methodology of this study is based on the systematic literature review approach proposed by Kitchenham and Charters, which ensures rigor and transparency in identifying, selecting, and analyzing relevant scientific evidence.

This structured approach was used to evaluate the influence of virtual reality (VR) on tourism, focusing on user satisfaction, emotional engagement, and the effectiveness of immersive experiences. The process entailed a systematic planning phase, an extensive review of indexed databases, and the organization of data to address specific research questions concerning the use of VR for exploring virtual tourist destinations.

For the analysis of this research documentation, the methodology established by Kitchenham and Charters has been followed. Proper design and execution, as well as the implementation of an effective search strategy, are crucial elements when using this methodology. Therefore, it is necessary to discover design, execution, and evaluation methods to obtain the most effective information from the scientific literature [15]. The established phases are as follows:

2.1. Planning the Literature Review

To understand the effective application of techniques and implementation strategies of virtual reality for exploring a virtual destination, it is essential to systematically review the existing literature on the subject. This method provides the most appropriate approaches for gathering and analyzing available primary research, allowing to determine which methods are most effective and likely to produce positive results. Therefore, the process of planning the review of available evidence will indicate the most appropriate methods for collecting and analyzing primary research [16].

In this research, several sources of indexed research articles were used, including databases such as ScienceDirect, Scopus, and Ebsco. Additionally, a scope protocol was created to determine the research needs and identify research areas related to the experience, operations, or theory of implementing virtual reality to explore a virtual tourist destination.

The following research questions are detailed in Table 1 below.

Table 1. Literature search questions

ID	Search Questions	Motivation
P1	What are the perceived benefits by users when using virtual reality to explore virtual tourist destinations?	Understanding the perceived advantages helps justify the investment in virtual reality technologies and can guide the design of experiences that maximize these advantages.
P2	What impact does virtual reality have on the intention to visit real tourist destinations?	Understanding the perceived benefits helps justify the investment in virtual reality technologies and can guide the design of experiences that maximize these benefits.
P3	What role do emotions play in the experience of users of virtual tourist destinations?	Understanding the perceived benefits helps justify the investment in virtual reality technologies and can guide the design of experiences that maximize these benefits.
P4	How does the quality of the virtual reality experience affect user satisfaction in exploring tourist destinations?	User satisfaction depends on the quality of the experience. Understanding the factors that influence it can help improve offerings and increase the acceptance and use of these technologies.

2.2. Conducting the Review

The research for this article will initially be carried out through an exhaustive search, with a structured and methodologically rigorous process to identify, evaluate, and synthesize the existing scientific evidence on the topic. The process aims to provide a comprehensive view of previous studies, highlighting key findings, knowledge gaps, and best practices in the implementation of virtual reality in the field of tourism.

Next, the search keywords in the review process will be reviewed.

2.2.1. Initial Search

The search for scientific articles began on May 20, 2024, with the aim of answering all the formulated questions. The following terms were used: "Virtual Reality," "tourism," "destination," "travel," "benefits," "experience," "satisfaction," "virtual tourism," "perceived," "advantages," "virtual tours," "influence," "impact." These terms were used in databases such as ScienceDirect, Scopus, and Ebsco.

The Boolean operators "AND" and "OR" were then employed to conduct an appropriate and meaningful search for each of the questions. These searches yielded various results, some of which were duplicates, but provided a general understanding of the context of the described terms, making a significant contribution to the research.

2.2.2. Systematic Search

The searches were conducted in English, as yielding more results related to the research topic than the Spanish terms. Searches in databases such as ScienceDirect, Scopus, and Ebsco produced results that were limited to the years 2018 to 2023, with the search string shown in Table 2. The combination of these search strings with inclusion and exclusion criteria and other filters allowed us to obtain the results.

Table 2. Applied search string

N°	Database	Search Equations
01	Science Direct	(virtual reality OR VR) AND (tourist destinations OR tourism OR travel) AND (benefits OR perceived benefits OR user experience OR user satisfaction)
02	Scopus	(virtual reality OR VR) AND (tourist destinations OR tourism OR travel) AND (benefits OR perceived benefits OR user experience OR user satisfaction)
03	Ebsco	(virtual reality OR VR) AND (benefits OR perceived benefits OR advantages OR user satisfaction OR user experience) AND (virtual tourist destinations OR virtual tourism OR virtual travel)

2.2.3. Inclusion and Exclusion Criteria

Table 3 shows the inclusion criteria used in the research, as well as the exclusion criteria that were omitted during the study.

Table 3. The inclusion and exclusion criteria

Inclusion Criteria	Exclusion Criteria
Articles published in English	Articles published in other languages.
Only articles published in the ScienceDirect, Scopus, and Ebsco databases.	Articles published in other databases.
Articles published from 2018 to 2023.	Articles from other years.
Publications that include primary articles and systematic reviews.	Exclude books, theses, bulletins, and repositories.

2.2.4. Additional Filters

Additional filtering criteria were employed to facilitate the selection of appropriate articles related to virtual reality.

First Filter: Title summary where a literature analysis is conducted.

Second Filter: After applying the initial filters, which can be valuable for systematic reviews as they are detected through the initial search string. From an initial total of 72.02 studies from various academic sources, the studies were distributed as follows:

Scopus database (20), ScienceDirect (22,020), Ebsco (30). All of these were subjected to the inclusion and exclusion criteria, additional filters, and duplicate removal. The studies from older years were also excluded, resulting in a total of 20 research study outcomes for analysis, as shown in Table 4.

2.2.5. Execution of the Review

After completing the analytical search, all this information is presented in Table 4, which details the aspects and technologies employed to enhance the implementation of virtual reality for exploring a virtual tourist destination, as well as the impact these studies have had on society.

The document analysis identified various technologies and applications of virtual reality in the tourism sector, highlighting both their impact and the factors that drove their development.

Table 4. Search results

Reference	Description
[16]	The present study proposes a theoretical framework through an analysis of the impact of smart tourism on biosphere values and environmentally responsible behavior (ERB). The value of the biosphere and the ERB of visitors are influential factors in promoting sustainable tourism. The concept of "smart tourism" entails leveraging "smart" technologies to enhance the travel experience, aligning with contemporary trends in tourism development.
[17]	The objective of this study was to examine the narrative persuasion process facilitated by technology and satisfaction with the story in a digital storytelling context. A comparative experimental study involving 193 participants demonstrated that the utilization of virtual reality to view a target narrative can exert a substantial influence on the behavioral intentions of viewers and facilitate their ability to effectively address emotional stress-related challenges in users.
[18]	A paucity of studies has examined the factors influencing the continued intention to use virtual visits, such as dominance, pleasure, and stimulation. To address this research gap, the present study developed an integrated framework and a structural model based on the pleasure-arousal dominance model to examine the influence of specific factors (atmospheric and emotional). The present study also demonstrates a correlation between extrasensory perception and vividness on the one hand, and enjoyment of virtual trips on the other. Virtual tour designers must prioritize telepresence and vividness to ensure a positive virtual tour experience.
[19]	The objective of this research is to examine the effect of virtual reality (VR) experiences generated with cutting-edge mobile devices on the desire to visit sites and attractions in a specific location. In order to achieve this objective, it is necessary to analyze whether the perceived visual appeal (VAP) of virtual reality and the emotional engagement (EI) of users have a positive influence on their behavior when visiting a cultural heritage site in a particular location.
[20]	The present study utilizes the stimulus-organism-response (SOR) paradigm to examine the manner in which virtual reality video stimulation engenders user flow experiences and subsequent satisfaction. The subsequent data analysis demonstrated that self-reported arousal exhibited statistically significant effects on pleasure, temporal distortion, and attention. The effects of respiratory frequency on pleasure and time distortion were analogous. The findings further demonstrate that user satisfaction is influenced by satisfaction and control.
[21]	The rapid advancements in virtual reality (VR) technology have led to a proliferation of opportunities for consuming travel-related content through leisure vehicles. According to the findings of two studies, the perception of being in a virtual environment has a significant impact on the enjoyment of virtual reality experiences. The first study, which was conducted in Hong Kong, involved 202 individuals, while the second study, conducted in the United Kingdom, involved 724 participants. Secondly, an increase in the sense of presence has been shown to enhance the interest and preference for the location. Thirdly, adopting a more optimistic attitude has been demonstrated to increase visits.
[22]	This study explores the potential of virtual reality (VR) to augment online presence and encourage the utilization of VR in conjunction with travel intentions within the context of sustainable tourism. Following their experience with VR, 512 local and international Vietnamese tourists participated in an online survey. The participants engaged with an application showcasing a nature-based sustainable tourism destination. The treatment group utilized virtual reality (VR) equipment, while the control group observed the destination on a two-dimensional (2D) screen. The findings indicate that virtual reality (VR) tours promote heightened telepresence compared to two-dimensional (2D) presentations.
[23]	Research has demonstrated that tourism consumption enhances subjective well-being; however, there is a paucity of empirical or conceptual knowledge regarding the trend of VR tourism in improving subjective well-being and the subsequent effects for tourism service providers and policymakers. The present study explores the potential benefits of VR tourism for individuals' subjective well-being, the nuances of the sense of presence that enable psychological distancing and enhance consumer well-being, and the subsequent attitude and behavior intentions stimulated by consumer well-being.

[24]	Virtual Reality Tourism (VRT), a form of digital ex-situ travel, has garnered the attention of various stakeholders in the sector, especially in the aftermath of the pandemic caused by the novel coronavirus. The findings offer substantiation for the positive correlation between the challenge of attaining a goal and proactive behavior towards the environment. This suggests that individuals who hold the perception that VR tourism is straightforward and does not necessitate significant time or effort are more inclined to endorse it and utilize it frequently.
[25]	The article utilizes a survey administered at the Heritage Exhibition to assess the novelty of this concept. The survey findings indicate that VR is an effective medium for enhancing understanding of the intangible qualities of architectural heritage and providing new insights into the historical construction processes of the building and its cultural significance. Virtual reality has demonstrated significant utility across a wide range of disciplines, offering a versatile tool for various applications.
[26]	Virtual reality (VR) storytelling has witnessed a surge in popularity within the domain of cultural communication, giving rise to sectors such as journalism, tourism, museums, and exhibitions. In this study, participants engaged with three immersive virtual experiences (IVE). The following video formats are available for viewing: 360-degree video with a VR headset, 360-degree video through mobile devices, and 2D video. The findings indicate that the predictive variables exert distinct influences on VR storytelling, eliciting varied emotional responses.
[27]	The advent of virtual reality (VR) has paved the way for the emergence of virtual worlds, avatars, digital twins, and novel social networks. In the domain of tourism, these technologies have the potential to assist travelers in visualizing real-world experiences, enhancing their quality, facilitating the recollection of experiences post-trip, or even substituting for the trip itself. The rationale for conducting empirical research on VR is substantiated by the transformative potential of the metaverse. The extant literature on VR tourism has traditionally centered on a particular application of VR, with a focus on its impact on user adoption or satisfaction.
[28]	The central objective of this study is to elucidate how perceived enjoyment influences the intricate relationship between collaborative value creation and customer satisfaction, with a particular emphasis on the tourism services sector. Survey data indicates that participants engaged in value creation processes in both physical and virtual environments. The most significant contribution of this study is the recognition of virtual value co-creation behaviors in tourism sector activities over time. This is particularly noteworthy because it indicates the likelihood of negative effects from its use.
[29]	In order to motivate consumers to engage with virtual tourism, researchers and professionals are focusing on enhancing customers' perception of authenticity. The present study utilizes a series of four experiments to examine the influence of social interaction and cross-sensory strategies on the relationship between virtual reality (VR) and the enhancement of authenticity perception and customer experience. The VR experiment also enhanced users' perception of the destination.
[30]	The present study employs the Value-Based Adoption Model (VAM) to analyze the factors influencing the adoption of Virtual Reality (VR) technology for online tourism among local tourists. Attractions ought to promote both perceived benefits (e.g., novelty, visual appeal, usefulness) and perceived costs (e.g., discomfort, complexity). The components of fun and interaction have been demonstrated to enhance satisfaction and value.
[31]	This technology has also been successfully implemented in the tourism sector since the 1990s. In the context of tourism, automobiles have emerged as a remarkably effective medium for promoting destinations, surpassing the efficacy of conventional media such as brochures. Notwithstanding this paucity of research, the amount of literature on the use of remote vehicles in promoting tourist destinations has continued to grow. The findings indicate that the majority of respondents expressed satisfaction with their experience with VR.
[32]	The field of tourism marketing has successfully adopted virtual reality (VR). The continuous advancement of these technologies facilitates the provision of enriched multisensory VR content, thereby augmenting the prospects of VR in the tourism sector, notwithstanding the predominance of conventional VR applications that are audiovisual in nature. The present manuscript undertakes an investigation into the manner in which these multisensory and genre settings affect users' sense of presence, satisfaction, emotions, and attitudes, with the objective of generating insights into the effects of these VR technologies.
[33]	This article provides an exhaustive examination of the "cloud computing" platform and technology. The three dimensions of tourist demand level, network platform development stage, and the aggregation and integration of service resources are used to propose the design ideas and principles for the intelligent tourism service model based on the network platform. The intelligent tourism service model, which is predicated on a network platform, is constructed using the theoretical framework of integrated advantages.

The articles reflect the diversity and complexity of current topics in virtual reality in tourism, as well as the importance of addressing them in a comprehensive manner and with innovative approaches, as shown in Table 5.

Table 5. Years of publication of articles

Year	Quantity	Studies
2024	5	[17], [25], [28], [29], [30]
2023	7	[16], [20], [22], [23], [26], [27], [31].
2022	4	[18], [24], [32], [33]
2018	2	[19], [21].

3. Results

The results obtained from the systematic review provide a comprehensive overview of how virtual reality enhances tourism experiences. The analysis addressed fundamental aspects such as accessibility, emotional engagement, intention to visit real destinations, and the quality of the VR experience. These findings were subsequently categorized and synthesized to illustrate the diverse benefits and challenges associated with the use of VR in tourism. This synthesis was carried out using data extracted from a curated set of scientific articles published between 2018 and 2024.

P1: What are the perceived benefits for users when using virtual reality to explore virtual tourist destinations?

- Enhanced accessibility: Virtual reality makes distant or physically inaccessible tourist sites more accessible to users who cannot travel for various reasons.
- Improved decision-making: Before a trip, VR experiences allow users to "try out" a destination before deciding to visit it, helping them make more informed decisions about their travels.
- Enrichment of tourist experiences: VR can enhance the traveler's experience by allowing them to explore and experience destinations in a more immersive and profound way.
- Increased customer satisfaction: Tourism research has shown that VR experiences increase users' overall satisfaction.

Table 6. Studies found

Benefits	Studies Found
Tourist Experiences	[19], [23], [25], [26], [27], [29]
Access to Destinations	[17], [21], [22], [26], [33], [29]
Time and Money Savings	[17], [20], [23], [24], [30]

As shown in Table 6, tourist experiences facilitate the visualization of real-world settings, enhance on-site interactions, facilitate exploration of destinations, and enable engagement in immersive experiences without the necessity of physical presence. The majority of these experiences utilize virtual reality (VR) technology to generate three-dimensional environments that emulate actual locations [19], [23], [25], [26], [27]. This affords users the opportunity to explore, interact, and learn about various destinations and cultures from the comfort of their home or any location with VR access [29]. The term "virtual access to tourist destinations" refers to the ability and ease with which users can explore and experience sites through digital VR technology and immersive video. These technologies empower users to interact with three-dimensional virtual environments that replicate actual, historical, or imagined locations [17], [21], [22]. Examples of such experiences include navigating cultural sites, visiting iconic landmarks, participating in location-specific recreational activities, and interacting with virtual guides or historical figures [26], [33]. Virtual tourism offers a convenient and accessible avenue for global exploration and cultural education, while promoting heritage preservation [29]. It facilitates the exploration of tourist sites without the constraints of physical travel, thereby reducing waiting times at stations or airports and eliminating limitations imposed by opening hours [17], [20], [23]. Moreover, given the potential financial constraints associated with transportation, accommodation, and activities, virtual reality emerges as a more economical alternative to conventional tourism [24], [30].

P2: What impact does virtual reality have on the intention to visit real tourist destinations?

Virtual reality makes distant or physically inaccessible tourist destinations more accessible to users who are unable to travel for various reasons, thus increasing the potential for visits. It enhances the traveler's experience by allowing them to explore and experience destinations in a more immersive and profound way, which boosts their overall satisfaction. Virtual reality improves accessibility, informed decision-making, user experience, and tourism promotion, all of which are key factors positively influencing the intention to visit tourist destinations.

Table 7. The impact of virtual reality

Impact	Studies Found
Technology Adoption	[16], [19], [20], [25], [27], [32]
Immersion and Knowledge	[16], [17], [22], [26], [31], [33]
Overcoming Barriers	[16], [21], [23], [24], [25], [30]

As shown in Table 7, the tourism industry and its stakeholders—namely, travel agencies, destinations, and hotels—are progressively incorporating virtual reality (VR) devices and platforms to enhance the visitor experience. This integration facilitates the creation of immersive simulations of real or fictional places that users can explore interactively, enabling them to customize activities and visualize destinations prior to travel [16], [19], [20]. The adoption of these advanced technologies by businesses has been shown to facilitate a differentiation of the enterprise from its competitors, thereby enabling the optimization of its operations and the enhancement of customer experiences [25], [27], [32].

Immersion and knowledge in VR tourism describe how this technology allows users to feel fully surrounded by digital recreations of real or imaginary destinations. Head-mounted displays and handheld controllers offer a comprehensive sensory experience, creating the sensation of physical presence in remote or otherwise unreachable locations [16], [17], [22]. By "visiting" these locations virtually, travelers can gain a more profound and empathetic understanding of diverse cultures and traditions, thereby fostering intercultural understanding and respect for diversity [26], [31], [33].

The phrase "overcoming barriers in virtual reality and tourism" underscores the manner in which VR mitigates conventional impediments to travel. The capacity for users to explore remote, protected, or historical sites is not impeded by geographic distance or physical limitations [16], [21], [23]. Furthermore, VR has been shown to facilitate access for visitors with special needs, enabling them to experience destinations virtually even in cases where on-site infrastructure is inadequate [24], [25], [30].

P3: What role do emotions play in the experience of users of virtual tourism destinations?

VR experiences stimulate users' senses by allowing them to interact and generate emotions. This makes virtual tourism a unique and immersive experience. Since a virtual tourism destination allows users to "try out" the place before deciding to visit, the emotions it generates can positively influence the intention to visit the actual destination. Interest and anticipation increase as a result of a positive virtual experience.

Table 8. User emotions in the virtual tourism experience

Emotions	Studies Found
Positive emotion	[18], [19], [23], [26], [30], [32]
Memories and connections	[16], [18], [22], [24], [29], [31]
Interaction	[20], [23], [30], [31], [32]

As shown in Table 8, The positive emotions experienced by users when interacting with tourist destinations through virtual reality (VR) are collectively referred to as positive emotions in tourism and virtual reality. VR provides immersive experiences that engender in users the impression of being physically present, thereby generating emotions such as excitement, curiosity, and admiration through a heightened sense of realism [18], [19], [23]. Users can explore destinations interactively and at their own pace, enhancing enjoyment and personal satisfaction [26], [30].

Immersive and realistic virtual reality (VR) experiences have the potential to engender enduring memories analogous to those formed during real-life excursions. These experiences shape users' perceptions and influence future travel choices [16], [18], [22]. By selecting specific areas to explore, engaging with cultural content, or enjoying tailored recreational activities, users can develop vivid and emotionally meaningful memories [24], [29], [31].

In these virtual environments, users can walk, turn their heads, and interact using VR controllers, simulating physical presence. Participants are able to select areas of interest to explore and experience full sensory immersion through realistic 3D visuals, ambient sounds, and, in some cases, haptic feedback [20], [23], [30]. This level of engagement fosters a more immersive and exciting experience for the user. Furthermore, users have the capacity to customize their VR experiences by selecting destinations, adjusting visual or audio settings, and choosing the duration and type of activities they wish to experience [31], [32].

P4: How does the quality of the virtual reality experience affect user satisfaction in exploring tourist destinations?

User satisfaction increases with a more immersive, realistic, and interactive VR experience. Experiences that stimulate the senses and allow users to interact within a virtual environment generate more positive emotions and a more memorable experience. A high-quality VR experience that enables users to explore destinations in a realistic and immersive way is essential to maximizing user satisfaction and the positive impact of this technology on the tourism sector.

Table 9. The Quality of Experience in User Satisfaction

Experiences	Studies Found
Attractive Content	[20], [23], [26], [28], [32], [33]
Satisfaction	[17], [18], [23], [26], [28], [30], [31]
Personalization	[16], [20], [23], [26], [28], [27], [31]

As shown in Table 9, High-quality graphics and detailed visualizations are essential for VR tourism, enabling users to feel fully immersed in a destination [20], [23], [26]. Interactive 360-degree videos let visitors explore different areas, engage in activities, and manipulate virtual objects, offering a realistic preview that supports trip planning [28], [32], [33].

User satisfaction with VR in tourism arises from its ability to deliver immersive, personalized, educational, and emotionally rewarding experiences that complement traditional travel [17], [18], [23]. Interactivity, spatial sound, and high visual fidelity heighten the sense of presence and perceived value [26], [28]. Smooth performance and user-friendly interfaces further enhance satisfaction, underscoring VR's role as an innovative tool for the sector [30], [31].

Within a VR platform, travelers can choose among cities, historical monuments, national parks, museums, and other destinations, tailoring the experience to their interests [16], [20]. They may adjust image quality, narration language, and interaction mode—selecting manual or guided tours that suit their preferences [23], [26], [28]. By deciding on routes, engaging in recreational or educational activities, and focusing on areas of interest, users actively shape their virtual journey and deepen their engagement [27], [31].

4. Discussion

The ensuing discourse interprets the results in light of the research questions and current literature on virtual tourism. The study explores the contributions of immersive virtual reality (VR) experiences to user satisfaction, emotional engagement, and cultural understanding. Additionally, it sheds light on the broader implications for sustainable and inclusive tourism. This section also reflects on the challenges identified in the reviewed studies, such as technological limitations and ethical concerns, and proposes future directions for the implementation of VR in the tourism industry.

The application of virtual reality (VR) has been demonstrated to elicit high levels of user satisfaction during the exploration of iconic tourist destinations such as Machu Picchu through immersive VR headsets. This technology fosters positive emotional responses and interactive engagement by allowing users to virtually experience the cultural and historical richness of the site. Furthermore, VR has exhibited a favorable cognitive effect by amplifying users' perception and appreciation of the destination.

Virtual reality has been identified as a pioneering instrument within the tourism sector, providing immersive experiences that facilitate users in exploring destinations in a distinctive and engaging manner.

Beyond its role in entertainment and leisure, virtual reality (VR) has been shown to make significant contributions to cultural education and the promotion of global accessibility to heritage sites. The most transformative feature of this technology is its ability to transport users to remote and exotic locations without the physical limitations typically associated with traditional travel.

Through the use of virtual reality headsets such as the Oculus Rift or the HTC Vive, users can navigate virtual reconstructions of historic streets, experience panoramic landscapes, and interact with cultural elements that have been meticulously recreated to ensure historical accuracy. The virtual environments developed using advanced VR technologies simulate a realistic presence at the tourist destination, enriching the overall experience.

Another critical advantage of VR in tourism is its capacity to eliminate physical and economic barriers that might otherwise hinder access to certain destinations. This inclusivity enables individuals from diverse geographical and socioeconomic backgrounds to explore and learn about the natural and cultural wealth of various locations, thereby expanding the reach and impact of global tourism.

5. Conclusion

The conclusions of the study summarize the principal findings and reaffirm the potential of virtual reality as a transformative tool in the tourism sector. The emphasis placed on its capacity to democratize access to cultural and natural heritage, enhance user experiences, and influence travel behavior is particularly noteworthy. Moreover, the conclusions emphasize the necessity for sustained innovation and research to address current limitations and to optimize VR technologies for broader and more meaningful applications in global tourism.

Virtual reality (VR) has emerged as a revolutionary tool in the tourism sector, offering immersive experiences that enable users to explore destinations in a unique and engaging manner. This technology plays a pivotal role not only in entertainment and recreation but also in promoting cultural education and enhancing global accessibility.

A significant benefit of VR in the tourism industry is its ability to transport users to remote or exotic locations, circumventing the conventional constraints associated with physical travel. The utilization of virtual reality headsets and the meticulous recreation of virtual environments enables travelers to experience a realistic sense of presence in historical landmarks and awe-inspiring natural landscapes.

Nevertheless, the integration of VR into the tourism sector introduces a number of challenges.

These include concerns related to the quality and authenticity of virtual experiences, ethical implications, and the environmental sustainability of digital tourism. Nevertheless, such challenges can serve as a catalyst for innovation. The integration of VR technology with artificial intelligence, enhanced personalization, and international collaboration aimed at preserving cultural heritage has contributed to its advancement.

In the future, it is predicted that virtual reality (VR) will have a transformative effect on the manner in which individuals perceive and engage with the world. It is anticipated that advancements in the field will result in the development of increasingly customized and adaptable applications, meticulously designed to address the unique requirements of travelers. Furthermore, as the technology continues to evolve, there is an expectation of increased integration of VR into educational frameworks and cultural initiatives. The overarching objective of these advancements is to enhance the tourism experience by making it more immersive, accessible, cost-effective, and culturally enriching.

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