Utilization of Virtual Reality Technology in Tourism Destination Promotion Strategy to Increase Tourist Attraction

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Abstract

This study aims to explore the utilization of Virtual Reality (VR) technology in tourism destination promotion strategies to increase tourist attraction through a Systematic Literature Review (SLR) approach. The study was conducted by selecting literature from academic databases such as Google Scholar, Scopus, and DOAJ, using keywords such as "virtual reality," "destination promotion," and "tourism" within the time span of 2014-2024. The results showed that VR significantly influenced travelers' perceptions by creating deep emotional engagement and increasing visit intentions. VR is also able to strengthen destination image through immersive experiences that enrich tourists' interactions with virtual environments. However, challenges were identified in the adoption of VR, particularly among older travelers, who often experience technology anxiety and lack familiarity with immersive technologies. This research highlights the gaps in understanding regarding the wider application of VR, as well as the need for further research to develop effective and holistic promotional strategies to integrate VR with conventional methods. Future research should focus on exploring how VR can maintain the authenticity of tourist experiences while addressing infrastructural barriers in developing regions and enhancing its appeal to diverse demographic segments. Additionally, VR's role in promoting sustainable tourism practices should be examined, ensuring that virtual experiences complement, rather than replace, authentic travel experiences.

Keywords : virtual reality, tourism destination promotion, tourist attraction, emotional engagement.

1. Introduction

In recent decades, the tourism industry has undergone significant changes along with technological advances and globalization. Tourism marketing is no longer limited to conventional media such as brochures, television, or print advertisements, but has evolved through digital platforms that allow direct interaction between tourist destinations and potential tourists (Kapoor & Kapoor, 2021). Social media, interactive websites, and mobile applications have become an integral part of modern marketing strategies (Matura, 2018). This not only expands the reach of promotion, but also makes it easier for tourists to get real-time information about destinations, experiences, and recommendations from other travelers (Linek et al., 2015). This transformation encourages industry players to adopt the latest technology to create more attractive and effective promotions, with the ultimate goal of increasing the competitiveness of tourist destinations in the global market.

Virtual reality (VR) technology has developed rapidly in recent years and has begun to be applied in various industries, including education, healthcare, entertainment, and tourism. VR offers an immersive experience that allows users to experience situations as if they were in a real

environment, even though they are not physically there (North & North, 2016). By using a specialized headset, users can see, hear, and interact with virtual environments that are created in such a way that they resemble the real world (Fuchigami & Ishida, 2023). In the context of tourism, VR is a potential tool to help potential tourists explore destinations virtually before they decide to travel (Shin, 2018). This technology not only enhances interaction, but also provides a more immersive and realistic preview experience than traditional media. However, the adoption of VR in tourism marketing is not without challenges, including high costs, technological barriers, and resistance from certain demographic groups, such as elderly travelers who are less familiar with virtual environments.

The use of VR in the tourism industry provides a great opportunity to enhance the attractiveness of destinations through immersive simulated experiences (V. Cui et al., 2020). This technology allows tourists to visit certain destinations without having to travel, so they can be more confident in choosing a tourist destination (Fregna *et al*., 2022). Through VR, potential tourists can explore attractions, see 360-degree views, and even experience the activities offered, such as ocean diving or walking through historical sites (Feng *et al.*, 2020). This potential can be an effective marketing strategy, especially in promoting destinations that may be difficult to access or that are lesser known. By providing an immersive experience before the actual trip, VR can help create an emotional bond between travelers and the destination, ultimately increasing interest in making an actual visit (Sharma & Sharma, 2022). However, research also suggests that VR's effectiveness in destination marketing depends on the content style, where more interactive, active experiences tend to yield stronger emotional engagement compared to passive formats.

Technology-based promotional strategies, such as Virtual Reality (VR) and Augmented Reality (AR), significantly enhance the visual experience of tourist destinations (Sangadi, 2023). VR creates a multisensory experience that strengthens the destination image and emotional attachment of tourists (Melo *et al*., 2024), while AR provides interactive features such as digital maps and real-time translation, enriching the tourist experience (Jiman & Kulal, 2023). AR also helps crowd management by guiding tourists in crowded areas (Zaifri *et al*., 2023). In cultural heritage sites, XR technology enhances learning with educational content (Duguleană *et al*., 2020). Therefore, tourism organizations are starting to integrate VR in their marketing strategies (Wirth & Racine, 2023). Despite its potential, the integration of VR and AR in tourism faces challenges, including technological limitations and the need for further research into how these technologies can be used together with traditional marketing methods to create a cohesive promotional strategy.

The integration of Virtual Reality (VR) in tourism increases the attractiveness of destinations by offering immersive experiences that allow potential tourists to explore locations virtually (Rafaal, 2023). VR enriches travel planning and positively influences tourists' behavioral intentions. It increases interactive engagement, strengthens (Innocente *et al*., 2023) interest in visiting, and builds emotional connections with cultural sites, making them more memorable (Karnchanapayap, 2023). VR also improves audience engagement through interactive activities, such as virtual exhibitions (Raeburn *et al*., 2022). However, certain demographic groups, particularly elderly travelers, still exhibit skepticism toward VR due to concerns over technological complexity and unfamiliarity with digital interfaces (Heřmanová, 2022). Overcoming these adoption barriers is important for the technology's effectiveness in attracting a wide range of travelers.

Virtual reality (VR) is now a promising tool in destination marketing, providing immersive experiences that can improve destination image and tourist attitudes (Chang & Chiang, 2022). Research shows that VR can amplify the flow experience, particularly through hospitality and telepresence, ultimately improving destination image and attitude (Griffin *et al*., 2023). However,

the effectiveness of VR depends on the content style, where more active VR content tends to be superior to passive styles and traditional media formats (Oncioiu & Priescu, 2022). VR applications in destination marketing aim to create and convey a consistent image to potential travelers (Morrison *et al.*, 2024). Research also shows that VR is able to evoke nostalgia and encourage slow travel intentions, especially to lesser-known destinations (Santos *et al*., 2022). As the tourism industry continues to adapt to new technologies, VR has the potential to reshape destination marketing strategies and customer relationships in the post-pandemic era (Lin *et al*., 2020).

Based on the research results, there are several gaps related to the use of Virtual Reality (VR) and Augmented Reality (AR) technologies in tourist destination promotion strategies. While many studies show the benefits of VR and AR in enhancing destination image, emotional attachment of travelers, and more immersive tourism experiences, further exploration is needed regarding the effectiveness of different content styles and the integration of these technologies with traditional promotional media. In-depth research is also needed to understand the barriers to technology adoption, especially among elderly travelers and certain demographics that are still skeptical of VR. Additionally, more research is required to explore how VR can be optimized for sustainable tourism practices, ensuring that virtual experiences do not detract from the authenticity of the destination itself. In addition, the aspect of nostalgia and the potential to drive slow travel intentions to lesser-known destinations still needs further study. This research aims to further explore how the optimization of VR and AR can enhance tourism promotion, as well as understand the challenges of applying these technologies across different tourist segments, to support the planning of more effective destination marketing strategies in the post-pandemic era.

2. Method

This research aims to examine the utilization of Virtual Reality (VR) technology in tourism destination promotion strategies to increase tourist attraction. The main focus is to analyze how VR can strengthen the destination image, increase tourists' emotional attachment, and its impact on visit interest. The literature search was conducted through academic databases such as Scopus, DOAJ, and Google Scholar. The keywords used in this search were "virtual reality", "tourism destination promotion", "tourist attraction", "immersive technology", and "digital tourism marketing". The search focused on publications published in the last ten years (2014-2024) to ensure that the research results were relevant to the latest technological developments. This period was selected due to the rapid advancements in VR technology during these years, with increased adoption in the tourism sector.

Inclusion criteria included empirical studies and research articles that addressed the application of VR in tourism destination promotion, its impact on destination image, emotional attachment, and tourist interest. Research that focuses only on Augmented Reality (AR) technology, other technologies not directly related to VR, as well as opinion-based publications without empirical data, will be excluded from the analysis. Exclusion criteria were clearly defined, including studies that did not involve immersive technologies or lacked empirical data supporting their conclusions. Literature selection was conducted by evaluating titles, abstracts, and full text to ensure relevance. The evaluation process was carried out by two independent researchers to ensure the consistency and reliability of the selection process. Data extracted includes research methodology, key findings, and implications for tourism promotion strategies. To ensure the reliability of the data synthesis, two independent researchers conducted the selection and coding process, resolving discrepancies through discussion. The analysis of this data will provide an overall picture of the effectiveness of VR in increasing tourist attraction. The research procedure can be seen in Figure 1.
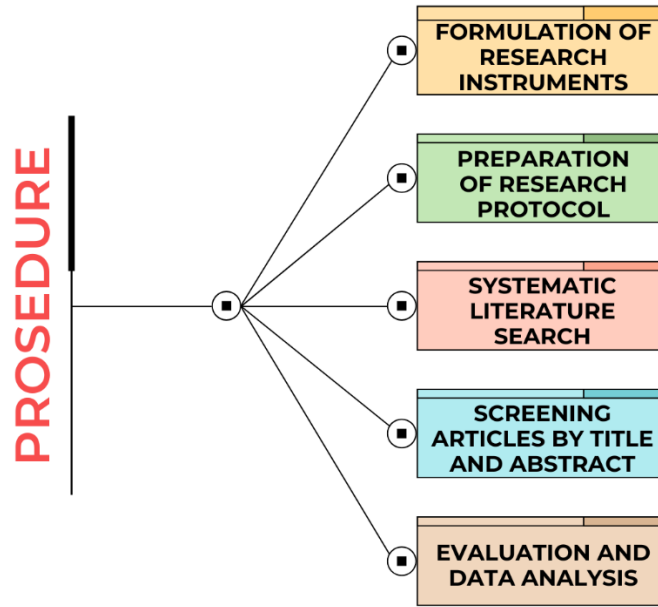
Figure 1. Research Procedure for VR Adoption in Tourism Promotion

Figure 1 presents the research procedure, which begins with the formulation of a clear and specific research instrument related to the influence of local traditions on visitor engagement in tourist destinations. The next step was the development of a research protocol that included setting inclusion and exclusion criteria and identifying relevant data sources. Then, a systematic literature search was conducted using predetermined keywords on relevant academic databases such as Scopus, DOAJ, and Google Scholar. Search results were filtered by title and abstract to eliminate irrelevant articles. Articles that passed the initial screening were further evaluated through full reading to ensure they met the inclusion criteria. The process for ensuring inter-coder reliability was applied by having two researchers independently code a sample of studies. Discrepancies were resolved through consensus. Data from the selected articles were then extracted and analyzed to identify key findings, trends, and research gaps. The conclusions from this analysis will be used to develop policy recommendations and best practices in the development of culture-based tourism destinations.

3. Result and Discussion

Based on the results of the literature search, several relevant research findings have been identified to support the focus and objectives of this study. Important aspects found include: (1) the influence of Virtual Reality (VR) on tourists' perceptions and emotional attachment, (2) the role of telepresence and multisensory experiences in influencing tourists' visit intentions, (3) demographic responses to VR technology, especially among young and elderly tourists, (4) the effectiveness of destination marketing with VR over conventional promotional methods, (5) the impact of restoration and subjective well-being of tourists through VR experiences, and (6) the potential of VR in strengthening destination branding strategies through a combination of advanced technologies such as 4D.

Table 1. Key Focus Areas and Insights from Reviewed Studies on VR Adoption
in Tourism Marketing

No	Focus Area	Author	Summary of Findings
1	VR's influence on Perception and Attachment	Dong & Qu (2023), Geng et al. (2024)	VR strengthens emotional attachment and destination perception, reducing perceived risk.
2	Influence of Telepresence and Multisensory Experience	Jorge et al. (2023), Wirth et al. (2023)	Multisensory VR experiences and telepresence enrich destination imagery and increase visit intentions.
3	Demographic Response to VR Technology	Cham et al. (2023), Sousa et al. (2022)	Younger travelers are more accepting of VR technology, while older travelers show resistance due to technology anxiety.
4	Destination Marketing Effectiveness with VR	Li et al. (2024), Zhu et al. (2024)	VR is more effective in promoting destinations than traditional methods, especially in building a positive image.
5	Restoration Impacts and Subjective Wellbeing	Geng et al. (2024), Skard et al. (2021)	VR experiences can trigger a sense of restoration and improve travelers' subjective well-being, contributing to emotional attachment.
6	VR's Potential in Branding Strategy with Advanced Technology	Yung et al. (2019), Leotta (2016)	VR, especially when combined with 4D technology, strengthens destination branding strategies through immersive experiences.

Table 1 summarizes research findings that categorize various aspects of VR implementation in tourism promotion. The main focus includes the influence of VR on tourist perception and attachment, the role of telepresence and multisensory in increasing visit intentions, and variations in demographic responses to the adoption of VR technology. In addition, research also highlights the effectiveness of destination marketing through VR, the impact of restoration and subjective well-being, and the potential of VR in strengthening branding strategies with advanced technology. These studies provide comprehensive insights into how VR can be strategically integrated in tourism promotion to meet the needs of different markets.

4.1 VR's Impact on Travelers' Perception and Emotional Attachment to Destinations

Virtual reality (VR) integration in tourism significantly affects tourists' perceptions and emotional attachment to destinations. Research shows that VR experiences strengthen destination image as well as emotional attachment, which in turn affects visitation intention (Dong & Qu, 2023). Immersive multisensory VR settings are particularly effective in enriching destination perceptions by engaging multiple senses (Jorge *et al.*, 2023). In addition, the perception of restoration during the VR experience contributes to travelers' subjective well-being, which further mediates emotional attachment (Geng *et al*., 2024). Social elements in VR environments also enhance mental imagery, strengthening attachment and increasing the likelihood of visitation (Skard *et al*., 2021). However, it is important to consider that emotional responses to VR may vary, especially based on demographic factors such as gender (Cui *et al*., 2023). Furthermore, VR can sometimes create unrealistic expectations about destinations, potentially leading to disappointment during the actual visit. This concern highlights the need for ethical considerations when using VR as a marketing tool, especially regarding how it may distort the authenticity of travel experiences.

Virtual reality (VR) has become a powerful tool in tourism marketing, influencing travelers' perceptions and emotional attachment to destinations. VR experiences can improve attitudes towards destinations and create a stronger sense of presence than less immersive technologies (Kim *et al*., 2020). Sensory information in VR tours positively impacts mental imagery, presence, and visit intentions (Yu *et al*., 2024; Marchiori *et al*., 2018). Informative, aesthetic, and novel VR content can evoke emotions and influence travelers' decision-making through emotional stimulation (Leotta, 2016). In family tourism, VR experiences have a positive impact on destination image and reduce the perceived risk of destination selection (Yung *et al*., 2020). Authentic experiences in VR tourism significantly influence cognitive and affective responses that mediate attachment and visitation intentions. These findings highlight the potential of VR in shaping travelers' perceptions and emotional attachment to destinations, ultimately influencing their travel intentions. However, one should consider the ethical implications of VR tourism, especially regarding its potential to overshadow the authenticity of real-world travel experiences and the impact on local communities and cultures.

Research shows that Virtual Reality (VR) significantly influences tourists' perceptions and emotional attachment to destinations. The immersive experience offered by VR is able to enrich the destination image, increase the sense of presence, and strengthen tourists' mental imagination. This contributes to stronger emotional attachment, which in turn increases visit intentions. In addition, VR also has a positive impact on travelers' emotional well-being, but responses to this technology may vary, depending on demographic factors such as gender. Overall, VR has great potential in strengthening destination appeal through travelers' emotional attachment.

4.2 VR Compared to Conventional Destination Promotion Methods

Virtual reality (VR) is now a transformative tool in destination marketing, offering significant advantages over conventional methods. Research shows that VR can improve destination image, advertising effectiveness, and visit intentions, especially through active experiences that are more emotionally engaging (Li *et al*., 2024). Stories told through VR create stronger emotional responses than traditional formats, increasing satisfaction and behavioral intentions (Wirth *et al.*, 2023). In addition, the combination of VR with physical experiences, such as 4D technology, strengthens branding strategies (Yung *et al*., 2019). However, the effectiveness of VR depends on the content style and user engagement, so a balance with traditional methods remains important. Moreover, VR's success in destination marketing may vary significantly depending on the socio-economic

context, particularly in developing regions where technological infrastructure and digital literacy may be limited. This creates challenges for implementing VR on a large scale in such areas.

Virtual reality (VR) has emerged as a promising tool in destination marketing, often surpassing traditional media in promoting tourist destinations. Research shows that VR experiences, especially those with active and multisensory content, can improve destination image, advertising effectiveness, as well as tourists' behavioral intentions (Zhu *et al*., 2024; Ying *et al*., 2022). The success of VR in tourism promotion is due to its ability to create a sense of presence and telepresence, which mediates the relationship between display vividness and user satisfaction (Yuce *et al*., 2020). Compared to videos on YouTube and other social media platforms, VR shows higher levels of advertising effectiveness, tourism image, and flow factors, such as friendliness, telepresence, interactivity, and sense of reality (Flavián *et al*., 2021). Nonetheless, the benefits of VR may vary based on content style and user characteristics, with some studies showing a difference in response between male and female participants (Lavuri & Akram, 2023). Despite these advantages, VR's applicability in destination marketing needs further exploration, especially in developing markets, where barriers such as cost and technological infrastructure can hinder its widespread adoption.

Existing studies show that Virtual Reality (VR) is proven to be superior to conventional destination promotion methods. VR is able to create a more immersive and interactive experience, especially through active and multisensory content, which significantly improves destination image, advertising effectiveness, and traveler visit intentions. The main advantage of VR lies in its ability to create a sense of presence and telepresence, which mediates the relationship between visual clarity and user satisfaction, something that traditional media such as YouTube videos or other social platforms struggle to achieve. In addition, the combination of VR with physical technologies such as 4D strengthens branding strategies and more authentic tourist experiences. However, the effectiveness of VR varies depending on the content style and user characteristics, such as the difference in response between genders. Nonetheless, VR has proven itself to be a more effective and attractive promotional tool than conventional methods in increasing traveler engagement and intention.

4.3 Exploration of Demographic Segmentations that are More Responsive to the Use of VR in Tourism Promotion

Exploration of demographic segmentations responsive to virtual reality (VR) in tourism promotion reveals important insights into how different groups interact with this technology. Research shows that although VR has transformative potential in tourism marketing, its adoption varies across demographics, especially among older travelers who show resistance due to perceived risks and technology anxiety (K. Jung et al., 2020). Younger travelers are more likely to accept VR experiences, increasing travel intentions and engagement with the destination (Mofokeng & Matima, 2018), while the elderly are more skeptical, influenced by barriers such as technology incompatibility and lack of human interaction (ERCAN, 2020). In addition, cultural context also affects the acceptance and effectiveness of VR marketing strategies, so customized approaches are needed for different demographic segments (Sofiko & Nino, 2023). Therefore, targeted marketing strategies need to be developed to meet the preferences and technological comfort levels of different demographic groups, especially with a focus on young travelers, while addressing the concerns of elderly travelers (Alghizzawi *et al.,* 2024).

Virtual reality (VR) is now a powerful tool in tourism marketing, offering immersive experiences capable of influencing destination image and travel intentions. Research shows that VR enhances cognitive and affective responses, reinforces authentic experiences, and reduces

destination choice risk (Hassan & Jung, 2018; Iacovino *et al*., 2020). In family tourism, VR positively shapes destination image and reduces perceived risk (Kumar, 2021). VR applications in destination marketing help create a consistent image, potentially restoring the tourism industry post-pandemic (Jung & Jeong, 2020). This shows the importance of VR as a strategic tool in tourism planning and marketing, especially for specific market segments. However, VR adoption is uneven across different demographic segments, with younger travelers being more open and engaged with VR experiences, while older travelers show resistance due to technology anxiety and preference for human interaction. Cultural context also affects VR acceptance, so a more specific and segmented approach is needed. While VR can provide significant benefits, its effectiveness relies heavily on marketing's ability to tailor strategies to the preferences and needs of each demographic group.

Virtual reality (VR) in tourism marketing shows that this technology has great potential to improve destination image, travel intentions, and more immersive tourism experiences. However, VR adoption is uneven across different demographic segments. Younger travelers tend to be more open and engaged with VR experiences, while older travelers show resistance due to technology anxiety and preference for human interaction. Cultural context also affects acceptance of VR, so a more specific and segmented approach is needed. While VR can provide significant benefits, its effectiveness relies heavily on marketing's ability to tailor strategies to the preferences and needs of each demographic group. This evaluation shows the importance of developing relevant content as well as support for more skeptical groups to maximize the impact of VR in tourism promotion.
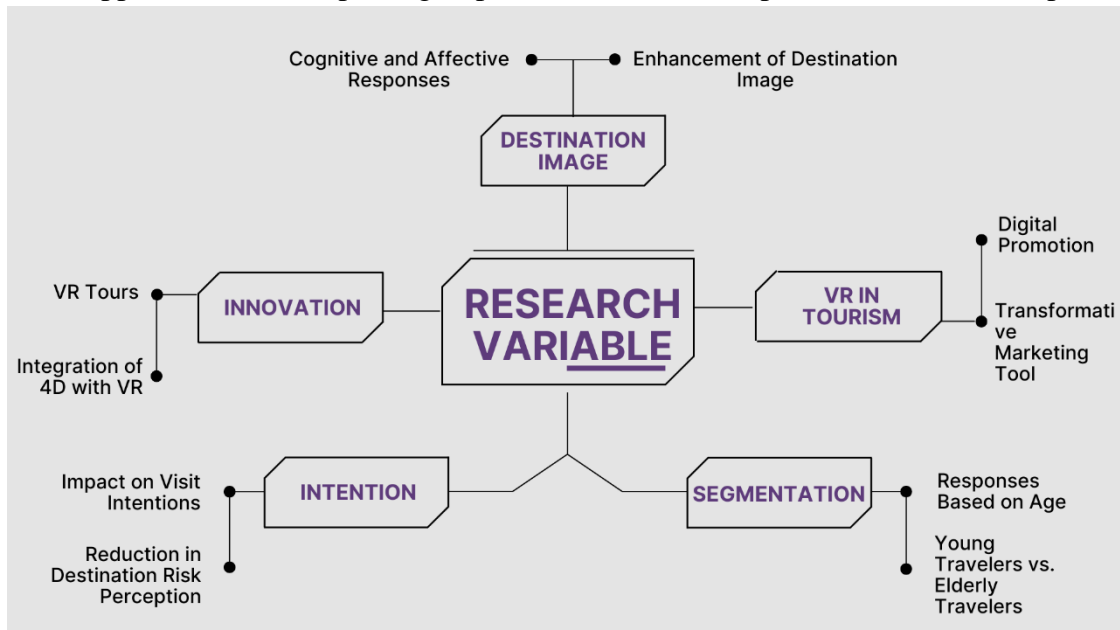

Figure 2. Development of Research Variables in VR Tourism Promotion

Figure 2 illustrates the development of research variables focusing on the role of virtual reality (VR) in tourism, especially in creating destination image and emotional attachment of tourists. VR, with its ability to deliver immersive and multisensory experiences, strengthens emotional attachment through interactive storytelling, thereby influencing tourists' visit intentions. The use of VR significantly reduces the perception of destination risk, especially in the context of families and young travelers, who are more responsive to this technology. Although VR demonstrates its effectiveness in creating a sense of presence and telepresence, research shows that responses to VR vary by demographic, with older travelers showing technology anxiety and resistance. In addition,

the incorporation of technological innovations such as 4D creates a more authentic destination experience, enriching the destination image and strengthening emotional attachment. Finally, cultural influences also play an important role in VR acceptance, which demands customized marketing strategies for different demographic segments.

4. Conclusion

The results of this study show that the use of Virtual Reality (VR) in tourism destination promotion significantly influences tourists' perceptions by creating stronger emotional engagement and increasing visit intentions. VR is proven to be effective in strengthening destination image and providing immersive experiences that enrich tourists' interactions with virtual environments. However, while VR can enhance tourists' emotional attachment to destinations, it is crucial to consider the potential risks of creating unrealistic expectations, which could lead to dissatisfaction during the actual visit. This underscores the importance of using VR responsibly, ensuring that it complements, rather than replaces, authentic travel experiences. Nonetheless, VR can face challenges in acceptance in some demographic groups, especially elderly travelers, who tend to show resistance to new technologies. This resistance is often due to technology anxiety and the lack of familiarity with immersive tools. To overcome these challenges, marketing strategies should focus on enhancing digital literacy and providing clear, accessible instructions for older audiences. On the other hand, younger travelers are more open to the use of VR and respond positively to the multisensory experiences offered. This demographic divide highlights the need for more targeted marketing efforts that address the preferences and technological comfort levels of different age groups. This gap in understanding suggests the need for further research to explore how to increase VR adoption in a wider demographic segment, as well as develop effective strategies in blending VR with conventional promotional methods to create a holistic and sustainable experience. Future research should also explore the ethical implications of VR in tourism, particularly regarding its impact on cultural authenticity and the potential commodification of destinations. Additionally, more focus is needed on VR's role in promoting sustainable tourism by reducing the environmental impact of travel. Future research also needs to examine the influence of VR in maintaining the authenticity of the tourist experience and how this technology can be utilized to reach a wider market. To ensure that VR contributes to long-term sustainability, it is essential to study its integration with traditional tourism practices, ensuring that it supports, rather than diminishes, the value of real-world travel experiences.

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