



Original research

Virtual Reality and Immersive Communication in Tourism Advertising

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Abstract

For many years, tourism has faced the same basic question: how do you convince someone to visit a place they have never been to? Virtual reality changes the way this question is answered. Instead of presenting a destination through carefully selected images, it gives the visitor an actual chance to navigate within it. Three VR tourism platforms were selected for this comparative study: Petra Virtual Experience in Jordan, Dubai 360 in the UAE, and VisitScotland VR in Scotland. Each was examined for how it communicates its destination to the user. Interface design, navigational structure, and storytelling organisation were the main points of focus. Presence theory, immersion theory, visual communication theory, and experiential marketing all inform the research. The platforms that communicate most successfully are those where spatial exploration, storytelling, and interface design work in harmony. The conclusion is not about technology. It is about design.

Keywords: Virtual reality; tourism advertising; immersive communication; visual communication; destination branding; Arab tourism.

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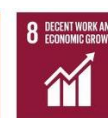
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1. Introduction

The main problem faced by tourism advertising throughout history lies in its very concept – it is necessary to convince a person to visit some place that they have never seen. For most of the twentieth century, the answer to this problem was found in the use of selective photography, video, and print ads. They showed. The approach of virtual reality (VR) is different. It offers an opportunity to discover.

Using 360-degree visualization, spatial navigation, and digital environment interaction, VR gives tourists a chance to experience the destination before traveling there, rather than learning about it through various ads. In other words, it transforms representational communication into an experiential one. The nature of the task facing the designer of a VR-based tourism advertisement has fundamentally changed: now the problem is not about selecting and presenting the right visuals but about designing the spatial experience itself.

Empirical research on the application of VR technology in tourism settings underscores the importance of the outlined shift in theoretical paradigms. Virtual reality decreases destination uncertainty, enhances engagement, and fosters intentions to travel to specific destinations (Tussyadiah et al., 2018; Loureiro et al., 2020; Rather et al., 2023). Still, the majority of VR research in tourism focuses on behavioral aspects and psychological characteristics rather than on the communicative aspect and the role of design. Current studies analyze the effects of technology on users rather than exploring why some virtual environment designs work better for destination promotion than others.

The current study aims to bridge this gap. It will focus specifically on the communicative aspect of VR tourism advertising and analyze it through the lenses of visual communication theories and an approach to evaluating immersive design. As the subject of research is the use of VR technology to promote tourism within the Arab context, three examples of such advertising campaigns that are freely accessible online will be selected for discussion. These three VR tours of Jordan, the UAE, and Scotland will enable researchers to compare immersive communication approaches for tourism destination advertising.

2. Theoretical Framework

The analysis draws on four theoretical frameworks that, taken together, position VR tourism advertising as a multidimensional communication environment in which technology, spatial design, visual organization, and emotional experience operate in interdependent ways. Figure 1 illustrates the conceptual relationship among these frameworks and their shared focus on communication effectiveness.

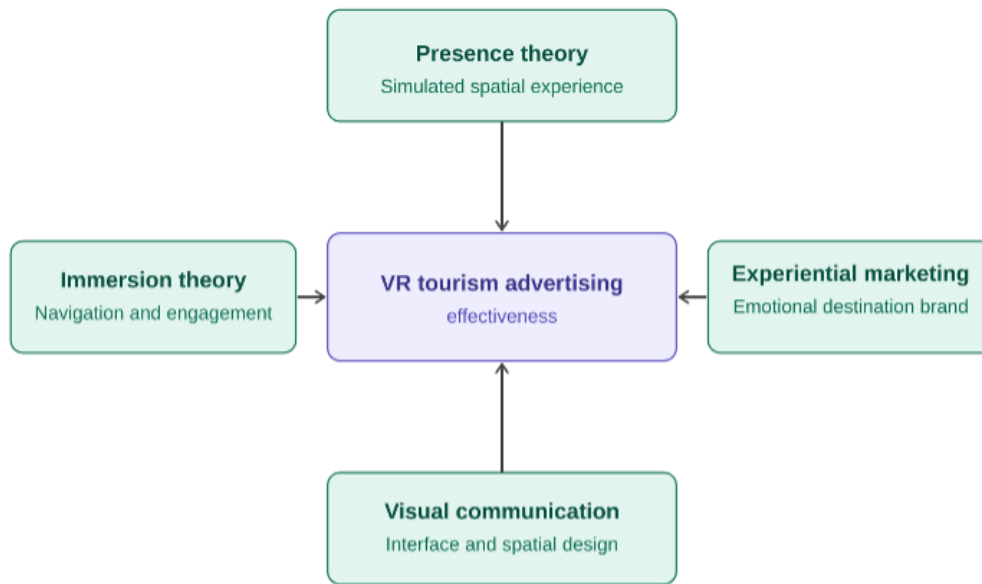


Figure 1: Conceptual framework four theoretical dimensions of VR tourism advertising effectiveness.

2.1 Presence Theory

The presence theory is a central concept in the study of virtual reality technologies (Steuer, 1992). The term refers to the feeling of being in a mediated environment rather than observing it from the outside. In virtual reality, presence depends on several conditions, including spatial fidelity, interactivity, sensory immersion, and the absence of perceptual elements that disrupt the immersive experience. In tourism, the concept of presence takes on particular significance because tourists' choices are tied to imagination and expectations of an upcoming experience. Tourism advertising usually aims to make a destination familiar to a consumer, while VR makes consumers feel as if they know a destination by experiencing proximity to it.

Research demonstrates that virtual presence leads to more positive attitudes toward destinations and stronger travel intentions (Tussyadiah et al., 2018; Song & Lu, 2024). Immersion in an environment increases familiarity, reduces travelers' uncertainty, evokes emotions, and boosts confidence in travel-related decisions. The choice of the presence theory for this paper was driven by the need to understand how presence influences the communication process when used for tourism advertising.

2.2 Immersion Theory

Immersion theory is a framework that examines how effectively digital environments capture users' attention and foster psychological engagement through interactions involving sensory inputs, space, and the interface. While presence is defined as the psychological state of being immersed in a digital environment, immersion refers to the technological features or qualities that can either foster or inhibit presence. These include high-resolution visuals, responsive navigation, and the absence of loading screens, among others.

When applied in tourism advertising, immersion enables users to engage with destinations in a more interactive way through exploration. Rather than receiving information about destinations passively, tourists gain knowledge by moving around and observing the surroundings. High levels of immersion create a strong sense of connection and, consequently, improve destination memorability.

2.3 Visual Communication Theory

Visual Communication theory addresses how imagery, visual composition, interface structure, and spatial representation affect sensemaking and how the audience perceives content. In conventional tourism advertisements, the effectiveness of communication rests on selective framing of images and control of narration. In VR communication environments, this dynamic changes dramatically, since the formation of meaning is no longer dependent on editorial framing. On the contrary, the consumer independently explores information and, depending on path selection and focus, creates an individual visual experience.

This shift in dynamics moves the viewer's role from passive consumers of visual messaging to active participants in the communication process. In this regard, meaning in immersive environments is shaped by visuals, movement dynamics, perspective and interactivity, and the space's explorative potential. The quality of design thus plays an important role in effective tourism communication. It is directly affected by interface structure, movement dynamics, visual hierarchy, environmental authenticity, and interaction design. Poorly designed environments could impair the effectiveness of communication despite technological innovation (Kress & van Leeuwen, 1996; Djonov & van Leeuwen, 2022; Jiang et al., 2023).

2.4 Experiential Marketing Theory

The theory of experiential marketing posits that the modern consumer prefers experience to information-based messages (Schmitt, 1999). There is a link between tourism and experiential marketing because decisions about where to go are motivated by imagination, expectations, and emotions rather than an objective evaluation of the destination's qualities. The use of VR in tourism marketing allows would-be tourists to test certain aspects of the travel experience without going anywhere physically. The immersive visualization and interactive exploration enabled by VR make it possible for a tourist to get a taste of a destination and its emotional and spatial characteristics. In this way, destination imagery becomes stronger and more appealing, while travel motivation becomes more profound thanks to the transformation of information content into experience. It is thus easy to understand why VR tourism ads are much more engaging than their traditional alternatives: tourists immerse themselves in the interactive reality rather than simply consume advertisements.

3. Literature Review

3.1 VR, Presence, and Tourist Experience

Research on VR tourism gained significant momentum following the initial literature review by Guttentag (2010). One of the most significant contributions to the body of evidence supporting this idea is Tussyadiah et al.'s (2018) studies, which demonstrated that virtual presence affects

tourists' attitudes and travel intentions. Other contributions include findings by Loureiro et al. (2020), which show that emotional reaction mediates the relationship between immersive presence and destination choice. Additional findings by Song & Lu (2024) reveal that spatial immersion improves destination memory and destination choice, while Rather et al. (2023) associate immersive interaction with destination brand engagement and tourism loyalty.

3.2 VR and Destination Marketing Communication

A systematic review by Beck et al. (2019) on the use of VR technology in tourism found that VR enhances tourism communication due to its interactive nature. Chang (2021) empirically demonstrated that virtual reality tourism promotion yields greater emotional engagement and creates more positive destination images than traditional advertising techniques and social media promotion. Ying et al. (2021) focused specifically on how the simulated presence phenomenon operates in VR tourism environments and proved that high levels of telepresence positively affect the intention to revisit destinations. Griffin et al. (2022) empirically showed that active navigational VR technology performs much better in marketing destinations than traditional passive 360-degree videos – which justifies the choice made by the present research. Wiltshier and Clarke (2017) researched the application of VR technology in the context of cultural tourism and stated that immersive experiences can play a role in destination branding.

3.3 Visual Communication and Design in VR Environments

While there has been increasing empirical support for VR's effectiveness in tourism, surprisingly few studies have addressed the design parameters of VR environments that ensure the achievement of promotional goals. This shortcoming was identified by Yung and Khoo-Lattimore (2019) in their systematic literature review, who found that most VR tourism studies concentrate primarily on measures of user satisfaction and behavior while paying less attention to the design structure, interface quality, and communicative aspects of VR tourism environments. The lack of focus on VR communication design in the context of tourism is corroborated by Baker et al. (2023), whose comparative user experience study of VR applications in heritage tourism identified 13 perceptual determinants of VR that correspond to the design dimensions examined here.

It is especially important to highlight this omission, since the effectiveness of a VR tourism environment cannot be assessed solely in technological terms. Despite equal technological capabilities, two VR platforms will produce entirely different communication effects depending on how they are designed in terms of spatial, navigation, and visual composition. Moreover, Anaya-Sanchez et al. (2024) demonstrate that greater attention should be paid to the narrative design of VR tourism experiences, given their high efficacy in promoting the brand.

3.4 VR Tourism in the Arab Context

Research on VR tourism communication within the Arab tourism system has been very limited compared with other international studies. For instance, the Faculty of Tourism and Hotels at Fayoum University (2017) conducted a study analyzing the application of virtual reality technology to promote tourism in Egypt. The study revealed a high degree of ignorance and a lack of implementation in the region, indicating significant underutilization despite the technology's capabilities. Factors related to the utilization of VR technology in the Arab tourism sector have been widely highlighted, including high production costs, a lack of technological expertise, low-

quality digital infrastructure, and insufficient cooperation between tourism organizations and visual communication experts. Nevertheless, one area that remains unexplored is the design of effective communication strategies.

4. Methodology

In this study, a comparative qualitative approach has been adopted, using a descriptive-analytical research methodology. For the analysis, three examples of VR tourism campaigns have been selected based on purposive sampling criteria. First, it is essential that all selected cases involve spatial navigation rather than passive 360-degree video viewing. Second, the chosen platforms should be accessible to allow direct observation. Third, the three cases should provide diversity in communication contexts, representing heritage tourism, a modern urban destination marketing campaign, and cultural tourism, respectively. Finally, at least one example of an Arab tourism campaign should be included among the selected cases.

Considering the above, it can be concluded that the campaigns Petra Virtual Experience (Jordan), Dubai 360 (UAE), and VisitScotland VR (Scotland) should be selected as case studies for the period January-March 2024. All three cases will be evaluated against seven criteria, including visual realism (consistency of resolution), spatial immersion (consistency of navigation), interface simplicity (clarity of navigation), user interaction (scope and responsiveness of interaction), emotional involvement (audio, narrative, and atmospheric components), and the sequentiality and interpretability of storytelling. In total, the following criteria will be used to evaluate all chosen cases, as provided in Figure 2 below. The current research is based on the direct observation method.

Dimension	Petra	Dubai 360	VisitScotland
Visual realism	High	Very high	High
Spatial immersion	Moderate	High	High
Interface simplicity	Moderate	High	High
User interaction	Limited	High	High
Emotional engagement	Moderate	Medium-high	High
Narrative structure	Limited	Minimal	Strong

Figure 2: Analytical dimensions applied consistently across all three case studies.

5. Case Study Analysis

Each of the three case studies is analyzed at three levels: the visual and spatial characteristics of the platform, its immersive and interactive design, and its construction of a destination argument

through these design choices. Figure 3 presents the comparative positioning of all three cases along the two dimensions of interaction level and narrative depth that most strongly differentiate their communication strategies.

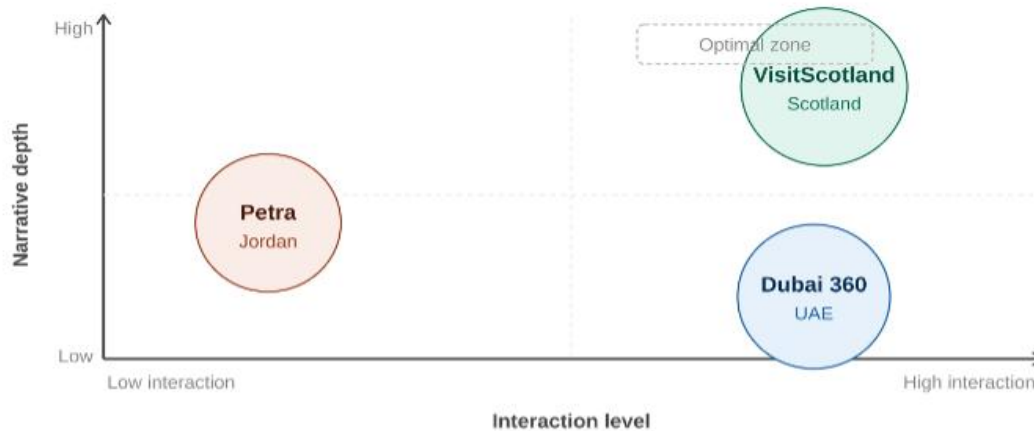


Figure 3: VR tourism cases positioned by interaction level and narrative depth. Bubble size reflects overall communication effectiveness.

5.1 Case Study One: Petra Virtual Experience - Jordan

Petra Virtual Experience is one of the most notable cases of immersive heritage tourism communication within the Arab region. The platform allows the user to virtually explore the archaeological setting of Petra using a panoramic visualization system that offers navigation through a site that is not only inaccessible but also environmentally sensitive. The navigation interface of the platform consists of several panoramic views of different locations around the archaeological site, from the entrance of the Siq canyon to the facade of the Treasury building, the Royal Tombs, and more, that are all interlinked through a directional navigation system.

In terms of visual communication, the primary feature of the Petra Virtual Experience platform is its ability to convey a sense of place through the site's spatial and environmental features. The sheer size of the Treasury building's facade, the enclosed verticality of the Siq canyon, and the vastness of the archaeological landscape are features that even the most skillful and artistic photographs cannot convey. In terms of spatial authenticity, the navigational system allows the user to actively explore and engage with the spatial layout of the archaeological site rather than passively viewing a series of photos taken by a photographer.

In terms of the platform's ability to convey meaning and communicate information at the connotative level, however, there are far fewer capabilities. Narrative context is largely absent from the platform, as the user is introduced to the environment without any further context, such as history or storytelling through audio and visual narrative techniques. The rhetorical argument constructed by the design can be summarized in two words: 'this place is big, old and visually stunning', something the panoramic shots can substantiate but fail to bring to life in terms of the historical, cultural, economic and social complexities of Petra, its Nabatean civilization and its use

as a trading center. The platform is based almost exclusively on the power of visual communication. At the same time, it is a huge loss of opportunities to learn more about such an interesting place.

On the other hand, in terms of the communication's argumentative level, the platform demonstrates a very accurate understanding of the potential of VR technologies in transforming the static visual image of the famous Petra façade into a three-dimensional cultural space. It is a real breakthrough in terms of creating such a virtual reality. However, there is still room for improvement in its implementation.

5.2 Case Study Two: Dubai 360 - UAE

Dubai 360 is one of the most technically sophisticated examples of virtual tourism communication projects in the Arab world. Unlike Petra, Dubai 360's interface stands out for its advanced navigation and spatial features. Through high-resolution panoramic visualization and multi-location navigation, the Dubai 360 platform presents the emirate as a technologically advanced, internationally connected, and architecturally impressive destination. The Dubai 360 interface deserves special attention as a communication device in its own right. Using the menu-based navigation system, users can freely move between diverse types of locations in Dubai: famous architectural landmarks, hotel resorts, beaches, shopping destinations, marinas, and aerial views of the city itself. At the same time, there are virtually no pauses when moving from one location to another, which is typical for this kind of interface. The most notable feature of the platform is how users can move between locations and experience transitions that do not disrupt their spatial immersion in the city environment.

From a visual communication perspective, the Dubai 360 platform presents the destination to potential tourists in several ways. First, a wide range of aerial photographs allows users to get acquainted with the size and density of Dubai's development. Second, panoramic views of landmarks such as the Burj Khalifa, the Dubai Frame, the Marina district, and Palm Jumeirah create an impressive vision of the city as a hub of international business, modernity, and ambitious architecture. Finally, there are almost no low-quality panoramic photos, and the interface itself offers the ability to experience Dubai's visual variety.

Despite its technical sophistication, the primary limitation of Dubai 360 is its inability to provide greater cultural depth to the user experience. Despite the platform's rich and complex visual environment, the user receives practically nothing except visual impressions of Dubai. While the rhetorical purpose of the communication is clear and successfully fulfilled – users get acquainted with this wonderful place to visit – there are no emotional elements added to it.

5.3 Case Study Three: VisitScotland VR

VisitScotland VR Experience (as viewed in the 2024 iteration of the platform) presents a qualitatively different model of immersive tourist communications, one in which storytelling and emotional atmosphere are key communication features. Unlike the Petra and Dubai examples of platforms focused almost exclusively on spatial access, the VisitScotland platform uses its immersive qualities to create a narrative experience that helps visitors understand the unique character of the Scottish destinations it promotes.

From a spatial perspective, the platform's content includes diverse locations ranging from Highlands castles with the adjacent landscapes to coastal sites on the islands and even some urban heritage spaces. All these environments are interconnected through smooth transitions that maintain user attention while also providing visitors ample opportunities to navigate within the virtual space. The platform's interface combines audio cues, such as environmental sounds and traditional music, with visual cues, providing a truly multisensory, immersive experience. Through this type of communication design, the platform creates a journey through different cultural spaces and places, explaining them to users as they explore the various landscapes presented in the environment.

In terms of rhetoric, the platform goes further than any other of those reviewed so far. While both the Petra and Dubai websites try to persuade viewers that the featured destinations are worth seeing for their cultural value and spectacular appearance, the VisitScotland experience communicates quite differently. It says that Scotland has a very distinctive atmosphere that visitors can experience firsthand, making it possible to 'live' the culture in question. The communication rhetoric in question operates on the principle of metonymy (in which a part stands for the whole because of contiguity). The selected parts of the landscape and culture are used to convey a larger idea of what Scotland is all about. In conclusion, the VisitScotland platform illustrates that successful VR tourism advertising relies not only on increased spatial access and higher resolutions but also on creating a persuasive narrative about destination experience.

5.4 Cross-Case Comparative Analysis

The three case studies collectively demonstrate that VR tourism advertising functions as a multidimensional communication system in which different design strategies produce qualitatively different communicative outcomes. Table 1 presents the comparative analysis across the seven analytical dimensions.

Dimension	Petra (Jordan)	Dubai 360 (UAE)	VisitScotland
Visual realism	High	Very high	High
Spatial immersion	Moderate	High	High
Interface simplicity	Moderate	High	High
User interaction	Limited	High	High
Emotional engagement	Moderate	High	High
Narrative structure	Minimal	Minimal	Strong

Table 1: Comparative analysis of three VR tourism campaigns across six analytical dimensions. Ratings: Low / Moderate / High. Note: overall effectiveness is discussed analytically in the text rather than summarised in a single rating.

The comparison clearly reveals a pattern. Of the three elements examined, narrative structure is what truly sets VisitScotland apart from the other two platforms. Dubai 360 beats Petra on spatial immersion, interface clarity, and interactivity, but it falls just as short on narrative structure as its competitor. This points to a developmental hierarchy. Petra does spatial authenticity reasonably well but offers little in the way of interpretation. Dubai 360 goes further with navigability and

strong visual impact. VisitScotland brings all three aspects together into a single, effective communication system. All three platforms manage presence and spatial immersion to varying degrees, but only VisitScotland successfully applies the principles of experiential marketing and visual communication to produce genuine attachment to the destination.

6. Findings and Discussion

These three key findings significantly expand the current theoretical discussion around VR tourism communication in the following manner:

Firstly, VR tourism advertising fundamentally shifts destination communication from representation to participation. In all three cases, users' understanding of the destination is grounded in spatial interaction rather than in the consumption of a curatorial vision. Thus, there are specific structural requirements for creating tourism communication in VR: rather than selecting and sequencing images, the focus should be on organizing a spatial experience. The design of navigational logic, spatial organization, and interaction potential become as important to communication as the quality of photographs. Hence, rather than being seen as a production technology, the field of VR tourism communication is repositioned as a design discipline. This may have far-reaching practical implications for how tourism organizations should allocate resources and organize the development of VR campaigns.

Secondly, an effective VR experience cannot be explained solely by the technological or aesthetic properties of the content provided, but by the interrelation among several dimensions of its design. While visual realism, navigability, and interface simplicity are important features, they do not suffice to make an effective communication tool. The case study with VisitScotland demonstrates that achieving emotional engagement and destination memorability requires narrative organization – a structured experience that allows users not only to access a specific place but also to comprehend its significance. This finding corroborates the argument of Anaya-Sanchez et al. (2024), who stress the importance of the narrative aspect of the VR experience. The comparative framework proposed by me provides a richer understanding of the narrative-spatial relationship in VR tourism communications, as evidenced by the differences in design priorities across Arab cases. Figure 4 below illustrates the conceptualization of these dimensions.

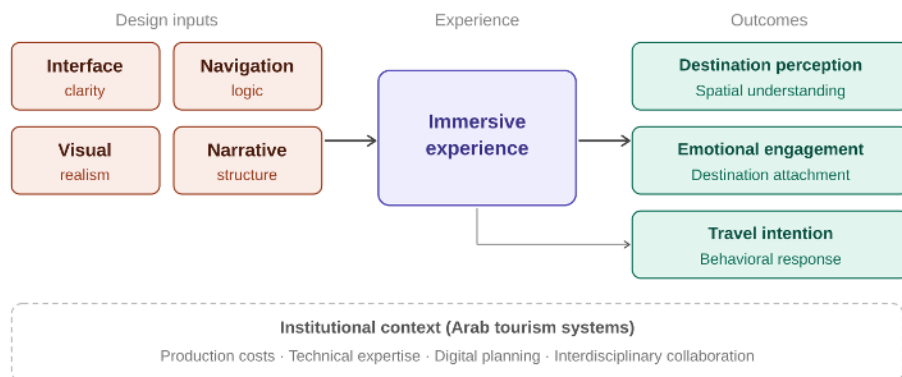


Figure 4: Conceptual synthesis of immersive tourism communication effectiveness and adoption constraints.

Thirdly, the results suggest that both examples from the Arab world have made significant efforts toward developing sophisticated visual production and navigation tools; however, neither case demonstrates a comparable level of communication design proficiency capable of translating technical sophistication into a highly engaging, story-like experience for destination users. This situation appears to stem not only from institutional limitations (cost, lack of expertise, insufficient collaboration across disciplines) but also from a broader conceptual problem in tourism communication design, where the potential to transform technological capabilities into a story and an emotional experience is overlooked in favor of visualization per se.

When analyzing the results, it is important to keep in mind several limitations of the research approach used in this analysis. First, the approach relies on direct observation and evaluation of three VR tourism communication platforms and excludes any user-centered research that involves behavioral data collection, user tests, or other forms of feedback on how users interact with the platform. Therefore, the conclusions are limited to communicative and design aspects of each analyzed case. Second, although the cases were chosen specifically to allow comparative analysis, the sample is not representative of the range of VR tourism communication practices around the world, or even within the Arab region. Finally, the time frame should not be ignored when considering the conclusions of this research: all cases were analyzed between January and March 2024, and future modifications or redesigns might alter the observations presented here.

7. Conclusion

Virtual reality technology has proven its potential as an innovative tool for destination branding and tourism advertising. This potential is qualitative because VR has transformed destination-tourist communication from mere representation to active exploration and participation in the communicative process. The results of this research prove that the success of VR tourism advertisements does not depend solely on the quality of the technology used to create immersive environments. Attractive visuals, a clear navigational structure, and coherence contribute to visitors' positive experience. An emotional story and rich cultural context are critical components that distinguish successful immersive environments from technologically impressive ones. The three cases analyzed in this research illustrate the evolution from providing access to space to communication design in VR tourism environments, which is exactly what allows the development of an effective destination attachment.

The implications of the findings for Arab tourism organizations are clear: in addition to investing in production quality, there should be cooperation among tourism strategists, visual communication designers, and immersive media experts to develop an effective communication framework based on virtual reality platforms. There are challenges related to the resources needed to produce immersive environments (production expenses, technical knowledge, and digital planning). Yet the key to successful implementation of VR in tourism advertising lies in understanding the concept behind VR communication design in general and for specific destinations. As immersive technologies continue to develop, the importance of communication design in creating VR tourism environments will only grow. Currently, many organizations can rely on the technical capabilities required to build attractive VR environments. On the other hand,

designing the experience and ensuring that the created immersive worlds are emotionally appealing present another task altogether.

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