

“Serial mediation role of destination image: Will virtual reality replace the decision to visit offline destination?”

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SERIAL MEDIATION ROLE OF DESTINATION IMAGE: WILL VIRTUAL REALITY REPLACE THE DECISION TO VISIT OFFLINE DESTINATION?

Abstract

This study aims to evaluate the impact of virtual reality exposure on Instagram users' decisions to visit physical locations and their perceptions of the destination. It also analyzes the mediating role of destination image on the physical tourism intentions of Instagram users in Indonesia. This study employs a positivist paradigm and uses an explanatory research design to conduct an online survey about virtual reality experiences and outline respondents' opinions about the decision to visit particular destination. Next, 280 millennial generation Instagram account followers responded to an online questionnaire; the data were analyzed using structural equation modeling. The criteria for respondents are Indonesian citizens who are Instagram followers and have virtual experience. Most respondents were between the ages of 23-32 years. The research findings indicate virtual reality positively and significantly affects destination image and offline visit decisions. Destination image has a positive and significant effect on offline visit decisions. Virtual reality encounters were incapable of substituting offline visits. The virtual reality encounter affects the perception of a destination and influences the decision to visit specific location in person. Destination images partially mediate the relationship between virtual reality experience and offline visit decisions. This study enhances the understanding of consumer behavior by examining its relationship with technological advancements, particularly among millennials. This paper also offers tangible contributions to tourism marketing management for destination managers.

Keywords

virtual reality experience, destination image, offline visit decision, tourist behavior

JEL Classification

M31, M37, O33, Z32

INTRODUCTION

Studies on tourism have concentrated on recently created high-tech marketing tools like virtual reality, mobile applications, and smartphones. Understanding visitor behavior is crucial for creating perfect tourism products. Traveler behavior encompasses selecting a destination, evaluating tourism offerings, traveling, and planning future behaviors. In order to boost visitor numbers, tourism managers need to be aware of the patterns of visitor behavior that can be advantageous to their destinations. One of the most significant changes in consumer purchasing behavior brought about by the widespread use of the Internet is the ease with which consumers can now search for, share, and purchase goods online, particularly on social media. The presence of technology plays a crucial role in facilitating the lives of Indonesians, specifically in the tourism sector. However, the ongoing COVID-19 pandemic has presented challenges for the industry, including the shift from traditional to digital platforms and devices. The tourism industry suffers the most significant impact because there is a

decline in income; therefore, after the pandemic ends, tourism industry players must utilize other marketing strategies to market their products creatively. The implementation and utilization of these digital technologies pose a variety of challenges for all stakeholders involved. The habitual use of the Internet and digital technology has become widespread among families, businesses, and throughout the tourism context. Undoubtedly, technology has improved efficiency and made life more convenient.

The use of technological devices can generate pleasure and satisfaction, thus encouraging frequent use. In the tourism sector, social media are crucial in acquiring pertinent information regarding different tourist destinations, allowing tourists to research places they intend to visit. Mobile phones have become indispensable tools for travelers who search for information about local attractions. The proliferation of social media platforms has significantly influenced people's daily lives, as evidenced by the increasing demand for tourism-related knowledge. Indonesian individuals have widely adopted the practice of sharing or posting updates about someone's activities, particularly when they are going on a tourist excursion. Moreover, travelers can acquire interpersonal advantages by exchanging valuable information on social media platforms. Instagram, a widely used mobile application for personal and commercial purposes, is a prevalent social media platform that enables users to share images and videos. Instagram has gradually integrated three essential elements associated with virtual reality, prompting some to regard it as a virtual reality application.

Indonesia markets various tourist destinations through e-tourism. Previously, tourism marketing was sufficient only by utilizing conventional media. However, Internet penetration has changed the distribution pattern of information and communication between companies and consumers in the tourism sector. This is also supported by the demographic group in Indonesia, which is currently dominated by the millennial generation. The amount of information shared on social media channels significantly influences travel planning. Additionally, the widespread use of social media has positively and negatively impacted travel and hospitality businesses and the wider industry. Given the influential power and complex effects of social media channels, it is crucial to understand when and how travelers use social media at various stages of their travel decision-making process.

The pervasive utilization of smartphones, the proliferation of the Internet, and the advent of social media shape the mindset and behavioral values of the millennial generation. Social media platforms possess a virtual reality aspect that can affect the behavior of tourists, precisely their intentions of visiting physical locations. The term used to describe this occurrence is phygital marketing, which aims to merge the physical and digital realms through communication and experiential means. It provides a smooth and uninterrupted encounter for the constantly mobile millennial generation. Phygital marketing enables marketers to craft a captivating encounter that captivates millennials and motivates them to interact with their brand. Millennials are regularly exposed to a surplus of content in the age of social media. Therefore, it is imperative to formulate a strategy that captures and sustains their interest for a considerable duration.

1. LITERATURE REVIEW AND HYPOTHESES

The behavioral theory serves as the foundation for this analysis (Mehrabian & Russell, 1974), which is a response from tourists based on existing stimuli and organisms. A virtual reality is an immersive experience that has become an increasingly popular tool for tourism; travelers are beginning to rely on destination images to confirm their virtual

experiences. Through exposure to virtual stimuli, tourists form an emotional connection with a destination, leading to behavioral responses that influence their decision to visit in person. The second theory this study adopts is the theory of planned behavior (Ajzen, 1991). It determines a final behavior, like an offline visit decision. The SDGs model includes three key variables: the control of perceived behavior, subjective norms, and attitudes toward behavior (Stewart Jr. et al., 2015).

Attitude refers to evaluating certain specific behaviors (Choo et al., 2016). People with a positive attitude toward a particular behavior are more likely to engage in that behavior. When it comes to visiting tourist destinations, if people think the attractions are worth it and make the decision based on their own experiences, they are more likely to visit. On the other hand, if people have had negative experiences with tourist attractions, they will not want to revisit.

Virtual reality (VR) is an advantageous real-world enhancement regarded as an effective marketing tool. This technological innovation allows individuals to engage with a computer-generated environment. It provides a multitude of advantages for both consumers and enterprises in the tourism sector. Additionally, it permits an examination of the most recent travel choices accessible (Tussyadiah et al., 2018). The term “virtual reality experience” pertains to the impact of virtual reality on visitors, encompassing their cognitive processes and emotional responses (Singh & Rajan, 2019). The existing tourism literature has not clearly defined the minimum requirements for experiencing virtual reality. In order to gain a deeper comprehension of the visitor’s virtual reality encounter, Wu et al. (2020) suggest that the aspects of the virtual reality experience encompass immersion, interaction, usability, and illusion. Based on that, virtual reality experience refers to how good or high the quality of the experience is perceived by users when interacting with virtual reality environments or applications. This experience quality encompasses various factors, such as the level of visual and audio realism, system responsiveness to user movements, comfort during use, clarity of the user interface, alignment between user expectations and the experience provided, and the overall impression generated by the experience. Evaluation of this virtual experience quality can affect users’ perceptions of the products or services offered and impact user satisfaction and retention. Therefore, understanding and enhancing the quality of the virtual experience is crucial in developing and implementing virtual reality technology.

Rauschnabel (2018) clarifies that VR is a desirable real-world improvement, so it can be considered a good marketing tool. VR is a technology that has

made a significant difference in the history of human thinking and currently helps to improve the quality of performance and products. The tourism industry has embraced the latest advancements in Internet technology, including the integration of virtual reality as a key feature. VR has proven to be an effective tool for presenting intricate information to a wide range of travelers and Internet users in an engaging and user-friendly format (Clark, 2017). However, despite its potential, VR technology in marketing is still new and under-researched, which limits one’s understanding of the associated risks and challenges (Grewal et al., 2017). Thus, virtual reality experience is enjoyable for research in tourism marketing, especially user or tourist knowledge related to destination image and offline visit intention. Virtual reality opportunities with destination images are used to attract the attention of potential visitors and motivate them to seek additional information needed to provide a future travel decision-making process, such as offline visit intention (Huang et al., 2013).

Modern tourism offers a variety of experiences for tourists interested in diversity as well as local culture and lifestyle in different tourist attractions (Brent Ritchie et al., 2011). Destinations are considered tourism products that provide an integrated experience for tourists (Chandralal & Valenzuela, 2015). Yung et al. (2021) state that dimensions from imagery processing could also be incorporated or researched alongside the framework. The term “destination image” refers to the complicated interplay between the actual image, the projected image of that place, and how visitors perceive it. This perception is based on subjective evaluations and opinions of the destination (Hunter, 2012). The key factor that drives brand equity is the brand image, which is the overall impression and emotions that consumers associate with the brand. This image has a significant impact on consumer behavior, shaping their perceptions and attitudes toward the brand (Zhang, 2015). In online tourism, it is not easy for professional marketers to influence users’ behavioral intentions, such as their visit intention (Blasco-Lopez et al., 2019). Tourists who already have a good destination image will find it easier to make decisions (Velikova et al., 2023). The intention to visit has attracted scientific attention because it is an important indicator of tourism loyalty (Leong et al., 2015).

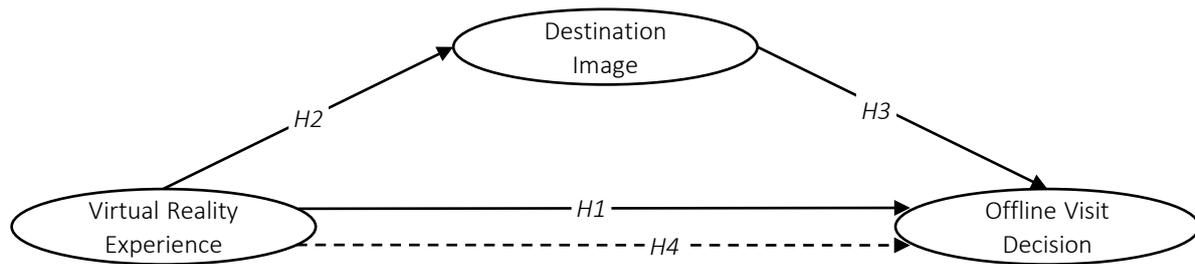


Figure 1. Conceptual model

In tourism, the stronger one's intention to visit a destination, the higher the likelihood of visiting (Lu et al., 2016). Therefore, it is crucial to investigate the intention to visit a place and understand its impact on tourist behavior (Su et al., 2020). Visit intention is the main thing that can influence tourists' behavior. Visit intentions can be formed based on the experiences felt and the information obtained by tourists. Experiences in traveler information search can create trust and value for travelers. Experiences can be formed based on virtual experiences, search information, and destination imagery. It is worth mentioning that decision theory and purchasing decisions have a similar analogy. Jalilvand and Samiei (2012) stated that the visit decisions are the same as those of consumers who decide to buy something. The decision is a process by which visitors assess and select the necessary alternatives based on specific considerations (Satyarini et al., 2017).

Virtual reality helps tourists experience destinations effectively and efficiently before visiting (Cho & Fesenmaier, 2000). Kim et al. (2020) show that virtual experience has a significant effect on the intention to visit. De Canio et al. (2021) support the notion that the perception of the experience plays a crucial role in determining the intention to visit in virtual tourism marketing. The satisfaction of using virtual reality in person can have a significant impact on shaping the desire to visit (Atzeni et al., 2022). Kim et al. (2021) provide evidence that virtual reality experiences affect enjoyment and may influence visitors' attitudes and intentions through virtual reality stimuli. Zeng et al. (2020) revealed that perceived experiences related to virtual reality can create a behavior. (H. Lee et al., 2020) proved that virtual reality experiences can positively influence tourists' intention to visit a destination by enhancing communication, knowledge, and cognitive thinking about the place (Wu & Lai, 2021).

This study aims to test and analyze the influence of virtual reality experience on destination image and offline visit decisions and to determine the mediating role of the destination image variable. Figure 1 shows the conceptual model of this study. Based on the description of several previous studies, the hypotheses are:

- H1: Virtual reality experience has a positive and significant effect on offline visit decisions.*
- H2: Virtual reality experience has a positive and significant effect on destination image.*
- H3: Destination image has a positive and significant effect on offline visit decisions.*
- H4: Virtual reality experience has a positive and significant effect on offline visit decisions through destination image.*

2. METHOD

This study employed an explanatory methodology to elucidate the relationship between two variables through hypothesis testing (Singarimbun & Effendi, 2011). The primary objective was to examine the impact of virtual reality experience on individuals' perception of a destination and their subsequent decisions to visit the destination in person. The study employed an online survey questionnaire to collect data from tourists or users of Singapore Guidebook Instagram account. The Singapore Guidebook was chosen because it serves as a main source of information in the Indonesian language for tourists planning to travel to Singapore. This platform enables convenient access to comprehensive information on diverse tourist destinations in Singapore, enhancing the overall quality of their touring experience.

The population consisted of individuals who utilize Instagram as a platform to seek information regarding tourist attractions in Singapore. The population is infinite, so the number of samples was determined using Machin and Campbell's (2012) formula; the final sample is 280 respondents. This study used structural equation modeling (SEM) as a data analysis technique. Primary data were collected through questionnaires created using the findings of Wu et al. (2020). The data type used in this study is based on several previous studies that focused on virtual reality experiences (Wu et al., 2020), destination images adopted from Lin et al. (2020), and offline visit decisions adopted from (H. Lee et al., 2020).

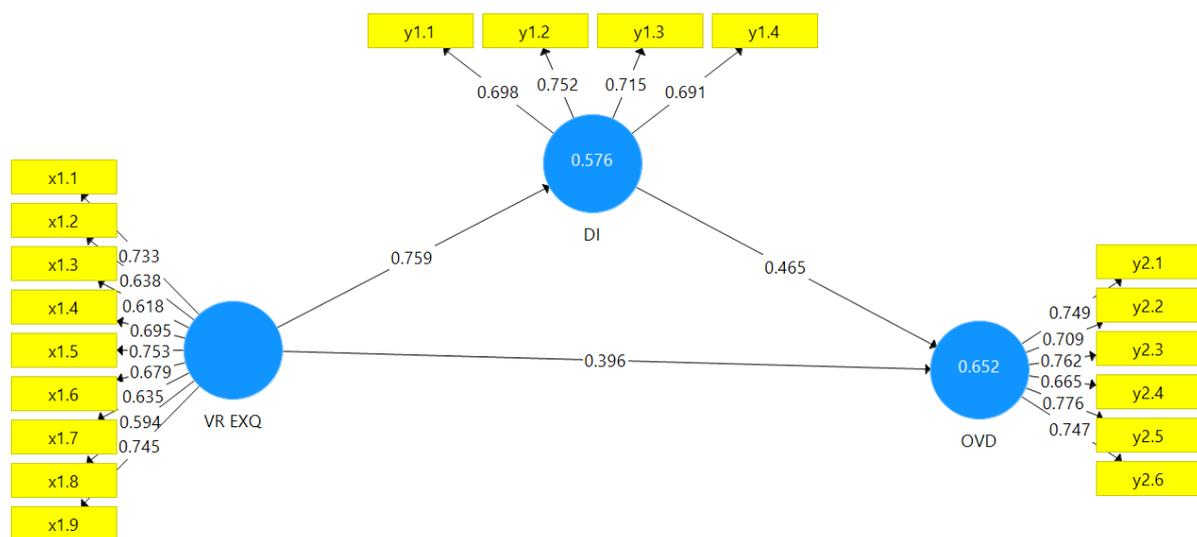
3. RESULTS

From the analysis of the respondents' demographic characteristics, 38% were male and 62% were female. Most respondents were between the ages of 23-32 years. Regarding educational background, bachelor's degree holders constituted 78%. Additionally, 83% of respondents engage in traveling activities.

Table 1 shows validity and reliability values. According to the rule of thumb for validity values in SmartPLS test results, the value should

reach at least 0.7 (Hair et al., 2019). Based on the outer model, the convergent validity and composite reliability of the research instrument have an outer loading value that exceeds 0.5 (Kusumawati et al., 2022); thus, the instrument is valid and reliable. The reliability of the research constructs was evaluated by considering the average variance extracted (AVE) value of 0.5 and the composite reliability value of 0.7 (Hair et al., 2017). The AVE values are above 0.5, which is acceptable (Chin et al., 2010).

After ensuring that the research instrument has been validated and proven reliable, it is then possible to assess its *R*-square and *Q*-square values. Hair et al. (2019) outline that when it comes to *R*² values, 0.75, 0.50, and 0.25 are considered substantial, moderate, and weak, respectively, while values of 0.90 and above are often indicative of overfitting. According to Figure 2, the *R*-square value for the destination image variable is 0.576, and the offline visit decision is 0.653. This suggests that the impact of destination image and offline visit decisions is moderate. Furthermore, the *Q*-square value reached 0.855. This indicates that the structural model explains 85.5% of the diversity observed, while the remaining 14% is unexplained. It is worth observing that 5% of the diversity is attributed to external factors not considered in this research model.



Note: VR EXQ = virtual reality experience, DI = destination image, OVD = offline visit decision.

Figure 2. SmartPLS model

Table 1. Validity and reliability

Code	Items	Convergent Validity	Composite Reliability	AVE
X	VIRTUAL REALITY EXPERIENCE		0.806	0.510
X1.1	VR experience makes me feel like I am in a tourist destination	0.733		
X1.2	VR experience provides an experience to enjoy natural tourist destinations	0.638		
X1.3	VR experience provides interactions with good usage communication	0.618		
X1.4	VR experience provides interactions that make a sense of comfort	0.695		
X1.5	The information VR provides regarding tourist destinations is straightforward to find	0.753		
X1.6	VR facilities are easy to use	0.679		
X1.7	I had a great VR experience	0.635		
X1.8	VR-related tourist destinations are easy to find	0.594		
X1.9	I feel like I am in a VR destination when I travel using VR	0.745		
Y1	DESTINATION IMAGE		0.876	0.541
Y1.1	The virtual Singapore Guidebook offers various exciting places to visit	0.698		
Y1.2	The virtual reality tourist destinations of the virtual Singapore Guidebook are lovely and have their characteristics	0.752		
Y1.3	I am happy to go to the virtual reality travel using the virtual Singapore Guidebook	0.715		
Y1.4	I am satisfied after visiting the destinations of the virtual Singapore Guidebook	0.691		
Y2	OFFLINE VISIT DECISIONS		0.884	0.561
Y2.1	I will visit the tourist destinations uploaded on the Instagram of Singapore Guidebook if I have the opportunity	0.749		
Y2.2	I compiled a schedule for visiting tourist destinations uploaded on the Instagram of Singapore Guidebook	0.709		
Y2.3	I will take the time to visit the tourist destinations on the Instagram of the Singapore Guidebook	0.762		
Y2.4	I will visit the tourist destinations uploaded on the Instagram of the Singapore Guidebook	0.665		
Y2.5	I will visit the tourist destinations uploaded on the Instagram of the Singapore Guidebook despite having a virtual experience	0.776		
Y2.6	The virtual experience I got required me to visit tourist destinations in person	0.747		

The Q-square formula is:

$$Q^2 = 1 - (1 - R^2_1)(1 - R^2_2) \tag{1}$$

$$= 1 - (0.424 \cdot 0.348) = 1 - 0.145 = 0.855.$$

The structural model utilized in this study demonstrates an elevated level of adequacy and reliability (Hair et al., 2019). Table 2 shows the results of the hypotheses testing. The results showed that virtual reality experience positively and significantly affects offline visit decisions. Destination images positively and significantly influence offline visit decisions. Indirectly, destination images also mediate the relationship between virtual reality experience and of-

line visit decisions. This is supported by the statement (Wang et al., 2023) that destination brand cognition plays a crucial role in tourists' decisions.

The research results show that the entire hypothesis is accepted. Virtual reality experience positively and significantly affects destination image and offline visit decisions. Destination image provides a partial mediating role in the relationship between virtual reality experience and offline visit decision. Hypotheses testing results show that virtual reality has a notable and beneficial effect on tourists' decisions to visit places in person. This is because virtual reality allows

Table 2. Hypotheses testing

Variable	Original Sample	Standard Deviation	T Statistics
DI → OVD	0.465	0.060	7.811***
VR EXQ → DI	0.759	0.026	29.120***
VR EXQ → OVD	0.396	0.062	6.406***
VR EXQ → DI → OVD	0.353	0.045	7.824***

Note: VR EXQ = virtual reality experience, DI = destination image, OVD = offline visit decision. Levels of significance: *** $p < 0.01$, ** $p < 0.05$.

tourists to learn about tourist destinations and enjoy a simulated experience of visiting those places. Tourists also find it easy to use virtual reality as it provides a real-time visit experience. The results of this study follow previous studies: virtual reality experiences can attract tourists' attention to visit offline (M. Lee et al., 2020). Initially, tourists equipped with advanced virtual reality technology will likely express interest in exploring various tourist spots (H. Lee et al., 2020). The decision to visit will be influenced by this experience (De Canio et al., 2021). Boavida-Portugal et al. (2017) also revealed that tourists' decision-making processes are based on the behavior of using applications to search for information about tourist destinations. Due to the current COVID-19 pandemic, tourists find virtual reality experiences to be enjoyable. However, it cannot replace the actual decision to physically travel. Additionally, virtual reality can assist tourists in discovering other fascinating tourist destinations based on the image of the destination (Manchanda & Deb, 2022). The decision to visit will still be made after using virtual reality; this depends on the level of health risk. Not only that, Tang et al. (2021) showed that weather variations influence tourists' decisions, especially regarding activities. The specific weather conditions that affect visitor behavior vary at each decision-making stage.

Tourists can gain additional information about a country's tourist destinations via virtual reality experience. This can also help create a more vivid image of the destination. Building interest and evoking positive emotions toward tourism products are vital for destination recovery in a post-COVID-19 landscape (Yung et al., 2021). Vera and Chang (2022) revealed significant differences in destination images before and after visits based on images on Twitter social media and the official homepage. Studies have shown a correlation between the perception of a destination and the use of virtual reality technology. According to Wu and Lai (2021), virtual reality can shape the perception of a travel destination, giving travelers a sense of trust when deciding to visit a specific location. The destination image is a key factor in influencing the decision to visit in person. According to Chaulagain et al. (2019), a person's interest in visiting a destination can be

influenced by the images he/she sees. The study also suggests that the destination image is essential in connecting a virtual reality experience to an actual visit. Tourists who have a virtual experience may compare it to their perception of the destination image, potentially leading to a decision to visit in person. Isaac and Eid (2019) prove that tourists who have visited Palestine and undertaken alternative tourism have a positive destination image, contrary to what is portrayed by the media, which calls Palestine a dangerous place to visit.

4. DISCUSSION

The findings reveal that most individuals who use virtual reality technology in Indonesia are millennials. This suggests that the behavior of millennials is influenced by the advancements in technology. Furthermore, virtual reality is closely related to the development of social media; people experience a transition of hobbies to visiting cafes and tourist destinations as a wasteful and semi-hedonistic lifestyle (Astuti, 2018). The millennial generation can benefit from technology advancements, specifically virtual reality, amidst the COVID-19 pandemic. These technological developments can help facilitate certain activities (Zolfagharian & Yazdanparast, 2019). Most individuals who use social media, particularly Instagram, are millennials who have become accustomed to viewing numerous tourist attractions to simulate a virtual visitation. By comparing the perception of a destination's image with virtual experiences, millennials can make informed decisions about whether to visit it in person. According to Atzeni et al. (2022), virtual reality technologies have recently made fast advancements, providing tourism operators with cutting-edge media to enhance the customer experience while allowing tourists to have early and easy access to experiences of a destination or site. This differs from the findings of Lin and Yeh (2022). Despite relatively rapid progress, the virtual reality experience still needs to show consistent results for users; this depends on how users can utilize or reject virtual reality.

This study provides new insights into the constantly evolving consumer behavior in response to technological advancements, particularly

among millennials who are highly influenced by social media. The emergence of social media platforms has led to the application of planned behavior theory in examining how consumers engage and share information on social media channels (Leung, 2019). This study also adds to the planned behavior theory by identifying several factors that influence consumer behavior.

The study highlights the importance of destination image in consumer decision-making and provides practical insights for tourism marketers. Destination managers must recognize consumer's changing needs and desires and create an immersive virtual experience while providing detailed information about the destination to attract offline visits.

CONCLUSION

The aim of this study is to determine if virtual reality can replace physical tourist trips and show that virtual experiences can provide a thorough understanding connected to destination images, potentially leading to a decision to visit. According to the study, virtual reality can only function as an alternative to physical tourist visits during the COVID-19 pandemic. Nevertheless, tourists still possess a strong inclination to visit these destinations personally. 83% of respondents engage in traveling activities. This proposition is corroborated by the findings of hypotheses testing, which demonstrate that virtual reality experiences (specifically, through the mediation of destination image) have both direct and indirect influences on decisions to visit in person. While virtual reality cannot completely substitute traditional offline tourism, this paper emphasizes the advantages of such immersive experiences. Individuals who have experienced virtual reality technology can gain additional information about the locations they desire to visit, resulting in an enhanced understanding and appreciation of those destinations. This increased perception may drive them to visit in person once the pandemic has subsided. The research results show that the virtual reality experience of the destination image provides the highest coefficient value among the relationships between other variables. Based on this, it can be concluded that the virtual reality experience can create a good destination image for tourists so that they can make decisions to visit offline.

There are limitations and potential future implications to consider. This study was conducted during the COVID-19 pandemic, which may have influenced tourists' interest in offline visits once the pandemic subsides. Additional research could explore factors, like trust and satisfaction, that may also impact the decision to travel offline after the pandemic.

AUTHOR CONTRIBUTIONS

Conceptualization: Karisma Sri Rahayu, Andriani Kusumawati, Edriana Pangestuti, Endang Siti Astuti.

Data curation: Karisma Sri Rahayu, Andriani Kusumawati.

Formal analysis: Karisma Sri Rahayu.

Funding acquisition: Karisma Sri Rahayu.

Investigation: Karisma Sri Rahayu, Andriani Kusumawati, Edriana Pangestuti.

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Validation: Karisma Sri Rahayu, Andriani Kusumawati, Edriana Pangestuti, Endang Siti Astuti.

Visualization: Andriani Kusumawati, Edriana Pangestuti.

Writing – original draft: Andriani Kusumawati.

Writing – review & editing: Karisma Sri Rahayu, Andriani Kusumawati, Edriana Pangestuti, Endang Siti Astuti.

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