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Beneficial Impact of COVID-19 Pandemic: The Potential of Virtual Heritage Tours for Tourism in Malaysia

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ABSTRACT

Virtual heritage tours aim to recreate historical environments, offering immersive experiences that allow tourists to explore cultural and architectural landmarks remotely. These tours enhance the quality of the tourism experience by presenting visually engaging content and providing educational insights into the heritage and unique features of historical sites. Such virtual experiences create a sense of on-site presence, closely mimicking the authenticity of physical visits. This research investigates virtual heritage tour programs in Malaysia during the Coronavirus Disease 2019 (COVID-19) pandemic. The study has two (2) key objectives: first, to assess the efforts of travel agencies in developing virtual tour programs, and second, to evaluate the experiences and satisfaction of virtual tourists participating in these programs. The research classifies virtual heritage tours into three (3) main types: Virtual Reality (VR) tours, live experience tours, and pre-recorded tours. Data was collected by analysing travel agency websites offering virtual heritage services and surveys distributed to participants who experienced the tours. Two (2) travel agencies were selected as case studies. In addition, a survey was administered, targeting 100 respondents, with 72% (72 respondents) completing the questionnaire. The findings provide insights into the types of virtual technologies travel agencies use and highlight the levels of appreciation and engagement among virtual tourists during the pandemic lockdown. This study contributes to understanding the role and impact of virtual heritage tours in maintaining cultural engagement during restricted travel.

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INTRODUCTION

The COVID-19 pandemic, from 2019 to 2021, profoundly impacted Malaysia's tourism industry. To curb the spread of the virus, the Malaysian government implemented various Standard Operating Procedures (SOPs), including a travel ban on both local and foreign tourists, which severely affected the tourism sector. Tourism is a critical component of Malaysia's economy, contributing 15.9% to the national Gross Domestic Product (GDP) in 2019 and significantly generating national income. It is also an ever-expanding sector with substantial growth potential. Tourism boosts economic development, creates job opportunities, and generates vital foreign exchange. The industry employs nearly a quarter of Malaysia's workforce, with around 2.5 million individuals depending on it for their livelihood. However, the pandemic brought drastic changes. According to the Department of Statistics Malaysia, the number of domestic tourist arrivals in 2020 decreased by 44.9%, accompanied by a 60.8% decline in total domestic tourist expenditure (Fig. 1). Tourism Malaysia also reported that tourism revenue peaked in 2019 at RM 85.14 billion. However, this figure saw a sharp decline of 85.27% in 2020, resulting in total receipts of only RM 12.69 billion (Fig. 2). These statistics underscore the severe economic consequences of the pandemic on Malaysia's tourism sector.

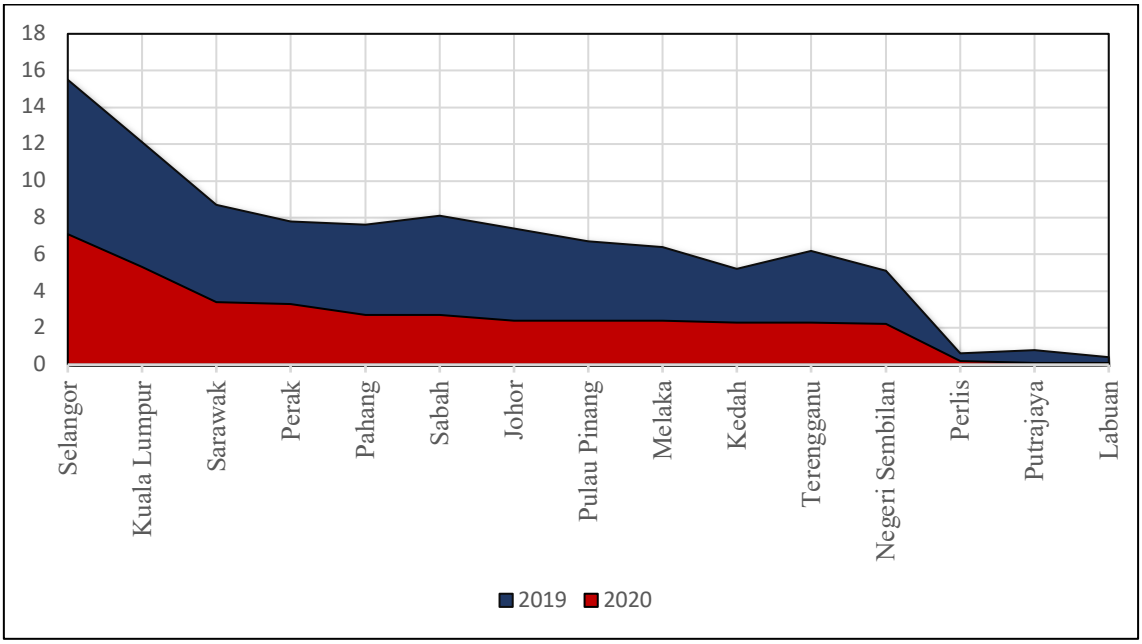

Fig. 1. Total Domestic Tourism Receipts by State in Malaysia in 2019 and 2020.

Source: Department of Statistics (2021)

The COVID-19 pandemic has fundamentally altered the way individuals navigate their daily routines, with widespread restrictions forcing citizens to adapt to working and studying from home. As governments worldwide, including Malaysia, implemented strict lockdown measures to curb the spread of the virus, industries that relied heavily on physical presence and mobility, such as tourism, faced unprecedented challenges (Gössling et al., 2020). The tourism sector, a significant contributor to Malaysia's economy, was severely disrupted due to the closure of borders, travel restrictions, and limitations on physical gatherings. In response to these restrictions, heritage tourism stakeholders sought innovative solutions to maintain engagement with cultural heritage despite the lack of in-person tourism opportunities.

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One such solution was the introduction of virtual tours within the heritage tourism industry. Virtual tours, defined as digitally mediated experiences that allow users to explore historical and cultural sites remotely, became an alternative means to engage both local and international audiences during the pandemic (Ye et el., 2022). These virtual heritage tours offered a way to sustain interest in cultural tourism and provide educational and immersive experiences that could be accessed from the safety of one's home. Virtual Reality (VR), 360-degree videos, and live-streamed events enabled tourists to experience cultural landmarks in ways that were previously supplemental to in-person visits but became primary modes of engagement during lockdowns (Ginzarly & Srour, 2022).

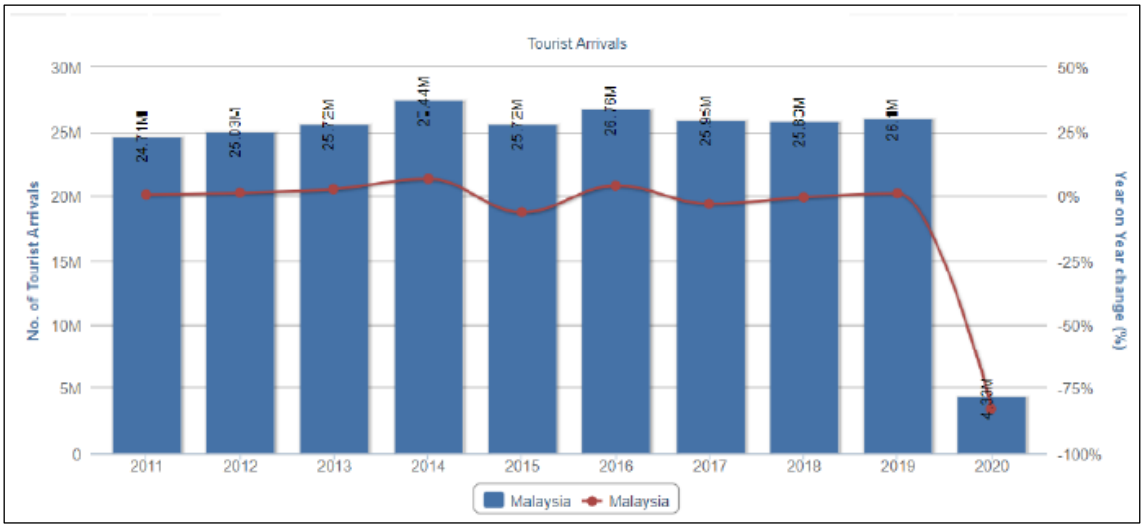

Fig. 2. Tourist Arrivals to Malaysia from 2011 until 2020.

Source: Tourism Malaysia with the cooperation of the Immigration Department (2021)

This research investigates the implementation and effectiveness of virtual heritage tour programs in Malaysia during the COVID-19 pandemic. Specifically, it seeks to answer the following key questions: How were virtual heritage tour programs organised and conducted in Malaysia during the pandemic? What was the level of participation in these virtual programs? And how did participants evaluate and appreciate the experience of engaging with Malaysia's cultural heritage through virtual platforms? These questions are central to understanding the adaptation of the tourism industry to the constraints imposed by the pandemic, particularly in terms of operational innovation and audience engagement.

The study addresses both the operational strategies employed by tourism agencies and heritage organisations and the broader cultural and social impacts of virtual heritage tours. By exploring the level of participation and the perceived value of these virtual experiences, the research aims to assess technology's role in preserving cultural engagement during a period of severe global disruption. Furthermore, it examines whether these virtual experiences were able to offer a meaningful substitute for physical presence at heritage sites and the degree to which they contributed to sustaining the heritage tourism sector in Malaysia during the pandemic. The findings will provide critical insights into the long-term potential of virtual heritage tours as a tool for cultural preservation and tourism resilience in the face of future crises.

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LITERATURE REVIEW

The ability to engage in travel experiences remotely during the lockdown period was made possible by implementing virtual heritage tour programs. Based on a review of available websites, three (3) predominant types of virtual heritage tour programs were frequently organised by travel agencies in Malaysia during the COVID-19 pandemic: Virtual Reality (VR) heritage tours, pre-recorded virtual tours, and live-streamed virtual heritage experiences.

Virtual Reality

Virtual Reality (VR) is a cutting-edge technology that replicates and simulates real-world environments through advanced digital systems, offering users experiences that closely resemble real-life scenarios. This technology belongs to a broader suite of immersive digital tools, including Augmented Reality (AR) and Mixed Reality (MR). AR enhances physical environments by overlaying digital information, such as two-dimensional or three-dimensional graphics, onto real-world views, providing users with enriched interactive experiences (Cao & Yu, 2023). Mixed Reality (MR), on the other hand, seamlessly integrates virtual and physical objects, enabling dynamic interactions between users and virtual content.

The application of VR within the heritage tourism sector is extensive, offering diverse functionalities, including virtual walkthroughs, interactive storytelling, and immersive simulations. VR presents limitless possibilities for remote engagement with heritage sites, allowing virtual tourists to experience cultural landmarks without geographical constraints. For instance, virtual walkthroughs of historical sites, such as the National Heritage Mosque (see Fig. 3), allow users to navigate these spaces and gain a sense of presence akin to physical visits. VR technology has also proven to be a valuable tool in marketing tourism destinations, as it creates a heightened sense of presence and emotional connection, enhancing user satisfaction and enjoyment (Tussyadiah et al., 2017). Moreover, VR facilitates an enriched tourist experience by providing reliable and immersive information, thus improving the informational and experiential phases of the consumer journey.

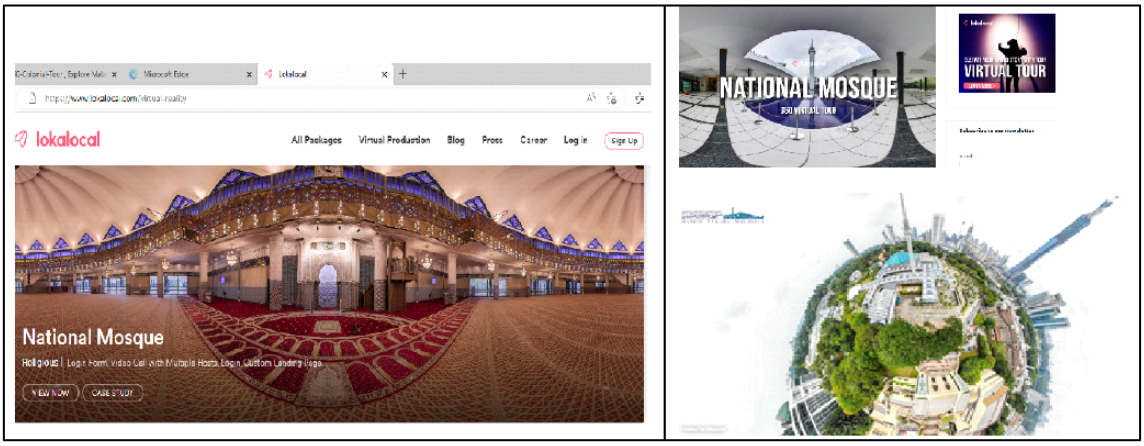

Fig. 3. Examples Of Virtual Heritage Tour Activities on The Website. By Signing Up On the Web, Visitors Can Experience 360˚ Virtual Tours That Enable Mosque Guides to Conduct Live Guided Sessions.

Source: LokaLocal (n.d.). [The Virtual Heritage Tour Activities on The Website]. Retrieved September 28, 2024, from https://www.lokalocal.com

Virtual heritage tours offer an innovative way to simulate historical environments, providing a high-quality and immersive tourism experience. By utilising visually compelling content and interactive

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technologies, these tours engage tourists in exploring significant historical sites' cultural, architectural, and unique features. Through such experiences, virtual visitors gain a sense of presence, feeling as though they are physically on-site despite being geographically distant, thus creating a near-authentic alternative to traditional tourism (Liu, 2020). Through virtual heritage experiences, users can gain a sense of presence, allowing them to feel as though they are physically on-site despite being geographically distant. This sense of immersion renders virtual heritage tours a near-authentic alternative to in-person visits (Colamatteo et al., 2024). The term "virtual heritage" stems from the intersection of Virtual Reality (VR) and cultural heritage, where the latter pertains to sites or artefacts of archaeological, historical, or aesthetic value (Cecotti, 2022).

Virtual heritage tours involve more than simple visual representation; they integrate observational data, precise measurements, and digital reconstruction to create immersive and detailed experiences for users. Virtual heritage goes beyond mere visualisation; it involves the collection of observational data, precise measurements, and the digital reconstruction of cultural elements, allowing users to experience heritage sites in a richly detailed and immersive manner. Roussou (2002) describes virtual heritage as a tool that facilitates the conservation and digital reproduction of historical artefacts and their recreation and aesthetic enhancement using VR technologies. Furthermore, virtual heritage serves as a vital medium for preserving cultural assets, enabling broader access to heritage sites while also contributing to the economic growth of the tourism sector by offering valuable artistic and educational experiences (Chen, 2024).

As virtual heritage technologies aid in the preservation, reproduction, and aesthetic enhancement of cultural assets through VR, ensuring their longevity in digital form. Moreover, these digital reconstructions serve as preservation tools and mediums for broader access and economic development, fostering tourism and contributing to the sustainable growth of cultural heritage (Boboc et al., 2022). Virtual heritage, therefore, plays a critical role in conserving and disseminating cultural knowledge while also driving engagement and economic opportunities within the tourism sector.

Live Experience Tour

Integrating advanced technologies has significantly transformed tourism, offering greater convenience for tourists and local communities alike. These innovations enhance tourist experiences by providing increased privacy, precision, ease of travel, and efficient telecommunications while generating supplementary income streams for residents (Godovykh et el., 2022). One prominent example of this technological integration is live experience virtual heritage tours, where virtual visitors can engage with local tourist guides through online platforms such as Zoom or Google Meet. These guides, registered and accredited by governmental authorities, ensure that the tours are informative and professionally conducted. Live virtual tours present an affordable and effective tool for promoting tourist destinations, particularly during periods of restricted mobility, such as the COVID-19 pandemic. Participants in these virtual tours are typically required to complete a registration process and pay entrance fees before gaining access to the online platform. Once registered, participants receive the meeting details, including the ID and scheduled time for the tour, ensuring a structured and organised experience. This model enables the continuation of tourism activities during lockdowns and serves as a sustainable approach to maintaining engagement with cultural heritage sites while supporting local economies.

During live virtual heritage tours, interactive two-way communication between tour guides and participants is facilitated through activities such as question-and-answer sessions, pop quizzes, and the exchange of personal experiences and opinions. This interactive model enhances the effectiveness of live virtual tours in delivering real-time information and addressing virtual visitors' specific inquiries and needs. There are two (2) primary formats for live virtual heritage tourism: the first involves live streaming from the heritage site, guided by a local or registered tourist guide, while the second utilises a virtual street map accompanied by photographs, offering a detailed overview of the site. Virtual tours supported by web

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technologies enhance the representation of heritage sites, allowing virtual visitors to gain spatial awareness and explore site-specific data. More recently, Leung et al. (2022) have emphasised that such tours significantly enhance the user experience by providing a visual and immersive interpretation of heritage sites, which helps virtual visitors develop a deeper understanding of the cultural and historical context.

Recorded Tour

Recorded virtual heritage tours can be produced either by licensed tour guides or travel enthusiasts, offering a range of content based on the intended message and the location being showcased. The duration of these recorded tours varies, reflecting the depth of information and experience that the creator wishes to convey. As illustrated in Fig. 4, many recorded virtual heritage tours available online are initially streamed live and subsequently uploaded for broader accessibility. Several platforms enable virtual visitors to download these recorded tours for offline viewing, providing greater flexibility in accessing cultural content. Additionally, online platforms often feature reviews and user-generated comments, allowing virtual visitors to share their experiences and provide feedback on the recorded tours. This interactive element helps future users assess the quality and relevance of the tours before viewing (Avcı & Akyol, 2023).

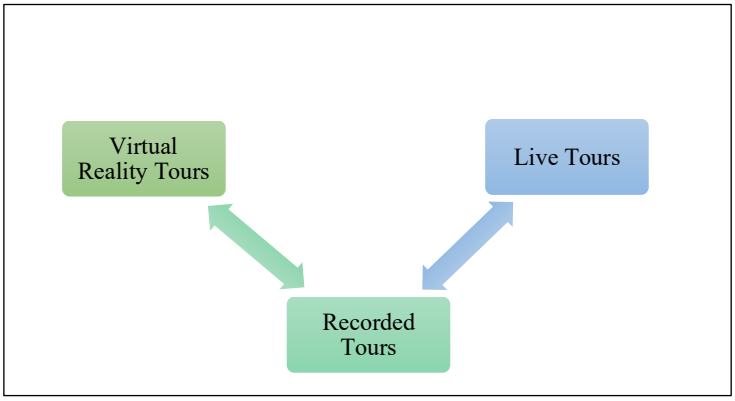

Fig. 4. Chart on The Source of Recorded Virtual Heritage Tours.

Source: Authors (2024)

Recorded virtual heritage tourism tours are an affordable and accessible option, with many videos available free of charge, making them particularly valuable for educational purposes. One significant advantage of recorded tours is their replayability, allowing virtual visitors to revisit specific content multiple times. This feature is particularly beneficial for those who may have missed or misunderstood certain aspects of the tour, as they can simply replay the video without inconvenience (Gao & Lee, 2024). Moreover, recorded virtual tours are easily searchable through standard internet search engines such as Google or Bing, further enhancing their accessibility. YouTube, as the most widely recognised video-sharing platform, is a crucial repository for such content, catering to a diverse audience across various age groups (Chang, 2022). By entering keywords related to the desired destination, such as the name of a city, building, or country, virtual visitors can quickly access relevant recorded tours, streamlining their exploration of cultural heritage sites.

METHOD AND MATERIALS

This research aims to identify the efforts of virtual heritage tour programs in Malaysia during the COVID-19 pandemic. There are two (2) objectives: the first is to find out the types of virtual reality online applied

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by the travel agencies in producing tour programs, and the second objective is an appreciation of virtual tourists participating in the virtual heritage tour programs in Malaysia during the lockdown. To achieve the objectives, the first stage is to search online websites of related agencies, such as travel agencies, including individuals or groups that initiate heritage tour programs. Two (2) travel agency websites have been selected as case studies. The websites observed are the Explore Malaysia Virtually website (https://www.exploremalaysiavirtually.com) and the LokaLocal website (https://www.lokalocal.com). The second method is a questionnaire survey to the viewers or visitors who are involved participants in the virtual heritage tour program. The targeted viewer for this study is 100 respondents, but only 72 forms are replies, which represents 72% of the samples.

RESULTS AND DISCUSSION

The survey respondents are visitors to heritage tours on the website. The questionnaire is divided into four (4) parts, and the result is discussed below.

Part A: Participation in virtual heritage tour programs in Malaysia during the COVID-19 pandemic.

The analysis reveals that the most frequently attended virtual heritage tours by participants were recorded virtual tours, accounting for 41.67% of the total. Notably, 73.61% of respondents reported that they joined virtual heritage tour programs for the first time during the pandemic. Additionally, 43% of respondents participated in these tours three or more times. The primary motivations for participation included the flexibility of scheduling, the opportunity to expand their knowledge, and the desire to compensate for missed vacation opportunities. Social media, personal recommendations from friends, and search engines were the predominant channels through which respondents were introduced to virtual heritage tours.

Table 1. Participation in Virtual Heritage Tour Programs.

Variable	Frequency (*n=72*)	Percentage (%)
Have you joined any of the virtual heritage tour programs?		
Yes, I have.	72	100
No, I have not.	0	0
Type of tour programme joined		
Virtual Reality	21	29.17
Live virtual heritage tour	21	29.17
Recorded virtual heritage tour	30	41.67
First time joining the tour		
Before Covid-19 Pandemic	19	26.39
During Covid-19 Pandemic	53	73.61
Frequency joining tour program		
1 time	20	27.77
2 times	21	29.17
3 times and above	31	43.06
Reason for joining the virtual Heritage Tour program		
Broadening knowledge	10	13.89
Hassle-free	8	11.11
Time Flexibility	14	19.44
Work or research	3	4.17
Interesting travel attraction	6	8.33
Missing the chance to go on vacation	10	13.89

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Interaction with tour guide	2	2.78
Preliminary travel information	6	8.33
Gain a first impression on the destination	9	12.5
Easy accessibility to less convenient locations	4	5.56
Who introduced you to the virtual heritage tour program?		
Family	6	8.33
Friend	16	22.22
Colleague	8	11.11
Email or newsletter	3	4.17
Search engine	16	22.22
Social media	17	23.61
Newspaper or website article	6	8.33

Source: Authors (2024)

Part B: Involvement in the virtual heritage tour programmes in Malaysia during the Covid-19 pandemic

The highest mean of responses by viewers is in the viewer's opinion, where virtual heritage tour programs are the best substitute for travelling during the pandemic (see Table 2).

Table 2. Viewer's Involvement in Virtual Heritage Tour Programs.

Item	Score / Respondents					Mean
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Travel is very significant for me.	0	0	6 (8.3%)	**40 (55.6%)**	26 (36.1%)	4.28
I gained a lot of knowledge and information on the virtual tour destination.	0	0	9 (12.5%)	**42 (58.3%)**	21 (29.2%)	4.17
The best substitute for travelling during the pandemic, in my opinion, is virtual heritage tour programs.	0	0	4 (5.6%)	31 (43%)	**37 (51.4%)**	**4.46**
I think the virtual tour program is interesting.	0	0	9 (12.5%)	23 (31.9%)	**40 (55.6%)**	4.43
I think the virtual tour program is pleasant and relaxing.	0	4 (5.6%)	12 (16.7%)	26 (36.1%)	**30 (41.6%)**	4.14
I think this virtual tour program was an awakening activity.	0	5 (6.9%)	14 (19.4%)	**38 (52.9%)**	15 (20.8%)	3.88
I think this virtual tour program gives positive images of the tour destinations.	0	0	6 (8.3%)	**36 (50%)**	30 (41.7%)	4.33
I am immersed in the virtual tour.	0	0	15 (20.8%)	**41 (56.9%)**	16 (22.3%)	4.01

Source: Authors (2024)

A significant proportion of the survey respondents, 47.2%, reported (see Table 3) that they were able to maintain full attention throughout the duration of the virtual heritage tour. This suggests that for nearly half of the participants, the virtual format was sufficiently engaging to hold their focus. However, a notable segment of respondents indicated challenges in sustaining their attention during the tour. Several factors were identified as contributing to this difficulty. One of the primary reasons cited was the absence of social interaction, which traditionally enhances the immersive experience of heritage tours by fostering real-time

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discussions and connections among participants. This limitation in the virtual setting may have detracted from the overall experience for some individuals.

Table 3. Involvement Of Viewers in Virtual Heritage Tour Programs.

Variable	Frequency (*n=72*)	Percentage (%)
Focus time while on tour		
Full focus	34	47.2
Half focus	28	38.9
Partially focus	8	11.1
Not focus	2	2.8
Reason for not focusing in the tour		
I am able to focus	34	47.2
Technical difficulties	15	20.8
Not exciting or not engaging	2	2.8
Not worth the money	0	0
Insufficient social interaction	21	29.2
Inexperienced tour guide	0	0
Other reason	0	0
Is it difficult to join the virtual tour?		
Yes	2	2.8
No	60	83.3
Maybe	10	13.9

Source: Authors (2024)

In addition, technical difficulties were highlighted as another critical factor that disrupted engagement. Issues such as poor internet connectivity, audio-visual glitches, and lag in real-time streaming can detract from the seamless delivery of information, thereby reducing the viewer's ability to stay focused. These technical obstacles not only interrupt the flow of the tour but also impact the participant's cognitive engagement with the content. Furthermore, some respondents reported that the tours lacked sufficient dynamism or interactive features, which made the experience less captivating. Tours that were perceived as less exciting or engaging failed to stimulate sustained attention, particularly in comparison to the immersive quality of in-person experiences.

Part C: The opinion on virtual heritage tour programs in Malaysia during the COVID-19 pandemic.

The survey results reveal that virtual heritage tours are well-received by participants, with a strong sense of presence and immersion reported by many. Virtual tours have not only been effective in maintaining engagement with cultural sites during the pandemic, but they also show potential as a tool for promoting future physical tourism. The high level of interest in recommending and continuing participation in virtual heritage tours suggests that this form of tourism will remain relevant beyond the pandemic, particularly as a means of complementing traditional tourism experiences.

Table 4. Opinion On Virtual Heritage Tour Programs.

Item	Score / Respondents					Mean
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
When joining a virtual tour program, I feel the everyday experience of being in a tourist destination.	0	12 (16.7%)	20 (27.8%)	**29 (40.3%)**	11 (15.2%)	3.54

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While joining a virtual tour, I often think to myself that I am at the destination.	0	11 (15.2%)	13 (18.1%)	**40 (55.6%)**	8 (11.1%)	3.63
After the virtual tour, I often think to myself that virtual tour programs should continue after the COVID-19 pandemic.	0	2 (2.8%)	16 (22.2%)	26 (36.1%)	**28 (38.9%)**	4.11
After the virtual tour, I planned to visit the site in the future.	0	0	5 (6.9%)	31 (43.1%)	**36 (50%)**	**4.43**
After the virtual tour, I would recommend virtual tour programs on my social media.	0	2 (2.8%)	15 (20.8%)	**38 (52.8%)**	17 (23.6%)	3.97
After the virtual tour, I would encourage my close acquaintances to visit the tour destination.	0	0	18 (25%)	**31 (43.1%)**	23 (31.9%)	4.07
I would like to join more virtual tour programs after the pandemic.	1 (1.4%)	3 (4.2%)	14 (19.4%)	**34 (47.2%)**	20 (27.8%)	3.96

Source: Authors (2024)

The survey results indicate that virtual heritage tours are well-received by participants, with a majority experiencing a sense of presence and immersion during the tours. Respondents expressed strong support for the continuation of virtual tours post-pandemic, seeing them as valuable tools for promoting tourist destinations and encouraging future physical visits. Additionally, the willingness to recommend virtual tours to others, both through social media and personal networks, suggests their potential for broader engagement and marketing. Overall, virtual heritage tours have proven to be an effective and appealing alternative to traditional tourism, with sustained interest even as physical travel resumes.

Part D: The recommendation and comments on virtual heritage tour programs in Malaysia during the COVID-19 pandemic.

Table 5 provides an analysis of respondents' perspectives regarding the significance of virtual heritage tour programs within the tourism sector. A substantial proportion of respondents (34.72%) identified virtual heritage tours as valuable instruments for promoting travel destinations during periods of restricted mobility, such as the lockdowns imposed during the COVID-19 pandemic.

Table 5. Comments On the Roles of Virtual Heritage Tour Programs in The Tourism Industry.

Variable	Frequency (*n=72*)	Percentage (*%*)
No		
The tourists cannot imagine themselves at the travel destination.	1	1.39
Yes		
Promotion towards tourism destinations in the pandemic.	**25**	**34.72**
Giving tourists the first impression of tour destination.	22	30.55
Generate the economy of the country.	12	16.67
Accessibility for everyone.	9	12.5
Exposing new technology for tourism to the public.	2	2.78
Does not cost as much as a physical tour.	1	1.39

Source: Authors (2024)

Table 6 further elaborates on the participants' recommendations, with the most prominent suggestion focusing on the enhancement of virtual heritage tour technologies. Additional recommendations included increasing the level of detail and interactivity within the tours, broadening the range of featured tourist destinations, improving promotional strategies, and incorporating merchandise options to enhance the overall virtual tourism experience.

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Table 6. Recommendation To Improve Virtual Heritage Tour Programs in Malaysia.

Variable	Frequency (*n=72*)	Percentage (%)
Technology		
Hire a 3D modeller to make a better 3D tour.	1	**22.22**
Make tours as immersive and versatile as possible.	4	
Option for downloadable VR tours.	3	
Utilising gyroscope sensors on mobile phones to provide interactive tours.	1	
Camera movement must be stable for the respondent's comfort.	4	
Better UI/UX.	2	
High-quality tour to maximise tourists' attention.	1	
Details		
Explaining thoroughly the places that they are showing.	1	20.83
Communicating in simpler words for the people to understand.	3	
Subtitles will make viewers pay more attention to the details.	6	
Audio music or voice-over narration on VR tour.	3	
Cinematic views and more storylines.	1	
Provide a pop-up of facts/information on a specific spot during the tour if there is no virtual assistant guide on tour.	1	
Interaction		
Add Q&A interaction with users	1	19.44
Activity with the audience	7	
Don't make the tour too long.	5	
Multi-language tour, not only in English and Malay language.	1	
Tourist destination		
Gives the audience a chance to pick tourist sites	8	19.44
More balanced tourism types are needed between building, site, nature, culture, and custom.	1	
More hidden gems tourism sites besides famous destinations.	5	
Promotion		
Promote virtual tour platforms on social media and public	4	15.28
Promotion through television advertisement.	3	
Promote tours with a series on a specific topic.	1	
Promote virtual tours in an exciting and eye-catching way.	3	
Merchandise		
Merchandise shops give tourists a chance to buy merchandise from desired tour destinations online and get them shipped to their houses.	2	2.78

Source: Authors (2024)

The survey respondents overwhelmingly agreed that virtual heritage tour programs have played a significant role in the tourism industry, particularly in promoting tourist destinations in Malaysia. Many participants had engaged in more than one type of virtual heritage tour program both before and during the pandemic. The outbreak of COVID-19 heightened the desire to travel, as many respondents expressed that they missed the opportunity to explore destinations globally. Virtual heritage tours, however, provided a solution, offering flexible scheduling, expanding participants' knowledge, and enabling them to experience travel affordably and conveniently from home.

Respondents indicated that they typically searched for virtual tours online and participated during their free time. The survey further demonstrated that participants were able to follow all types of virtual heritage tour programs, with the majority maintaining focus throughout the experience. While some noted

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dissatisfaction due to a lack of interaction or occasional technical issues, most found the tours easy to attend and overall fulfilling. Participation in virtual heritage tour programs was substantial, and it is expected that engagement will continue to rise post-pandemic. Virtual heritage tours not only allowed visitors to explore sites remotely but also served as a precursor to on-site visits, enhancing their overall travel experience. In conclusion, the second objective of this study was achieved, as respondents demonstrated a strong appreciation for the virtual heritage tour programs organised by travel agencies in Malaysia during the COVID-19 pandemic.

CONCLUSION

Four (4) years have passed since the onset of the COVID-19 pandemic, and global travel has resumed, allowing individuals to once again engage in physical tourism. Nevertheless, for those unable to travel internationally, virtual heritage tour programs remain a valuable resource as they continue to be accessible online. The implementation of virtual heritage tour programs in Malaysia, while accompanied by various challenges and opportunities, has nonetheless played a pivotal role in supporting tourism organisations. Although these programs did not operate at total capacity, they contributed to sustaining the tourism sector during a period of restricted mobility. Moreover, virtual heritage tours have emerged as an effective promotional tool for tourist attractions, with the potential to enhance future visitor numbers and reshape the interpretation and presentation of heritage tourism products.

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CONFLICT OF INTEREST STATEMENT

The authors agree that this research was conducted without any self-benefits or commercial or financial conflicts and declare the absence of conflicting interests with the funders.

AUTHORS' CONTRIBUTIONS

Nurul Farah Atikah Mohamad Zahar conducted the research, wrote, and revised the article while conceptualising the central research idea and providing the theoretical framework. Siti Norlizaiha Harun supervised the research progress while Edzrie Shah Shaharudin, Irin Caisarina and Ahmad Rasidi Abdul Ghani reviewed as well as approved the article submission.

REFERENCES

Avcı, A. B., & Akyol, G. (2023). The role of digital technologies in enhancing heritage tourism. https://doi.org/10.6084/m9.figshare.24078744.v1

Boboc, R. G., Băutu, E., Gîrbacia, F., Popovici, N., & Popovici, D. M. (2022). Augmented reality in cultural heritage: an overview of the last decade of applications. Applied Sciences, 12(19), 9859. https://doi.org/10.3390/app12199859

Cao, W., & Yu, Z. (2023). The impact of augmented reality on student attitudes, motivation, and learning achievements—a meta-analysis (2016–2023). Humanities and Social Sciences Communications, 10(1), 1-12. https://doi.org/10.1057/s41599-023-01852-2

©Authors, 2024

Cecotti, H. (2022). Cultural heritage in fully immersive virtual reality. Virtual Worlds 1 (1): 82–102. https://doi.org/10.3390/virtualworlds1010006

Chang, H. H. (2022). Virtual reality, YouTube, or social media? Assessing promotional effects on tourism destination. Journal of Vacation Marketing, 28(2), 211-227. https://doi.org/10.1177/13567667211038960

Chen, X. (2024). Virtual Reality (VR) for Cultural Heritage Preservation in China. Asian Journal of Computing and Engineering Technology, 5(1). https://doi.org/10.47604/ajcet.2807

Colamatteo, A., Sansone, M., Pagnanelli, M. A., & Bruni, R. (2024). The role of immersive technologies in cultural contexts: future challenges from the literature. Italian Journal of Marketing, 2024(1), 113-142. https://doi.org/10.1007/s43039-024-00089-4

Department of Statistic Malaysia. (n.d.). Performance of Domestic Tourism by State, 2021. Retrieved September 30, 2022, from https://www.dosm.gov.my/portal-main/release-content/performance-of-domestic-tourism-by-state-2021

Gao, K., & Lee, D. Y. (2024). Exploring the Effect of Youth Cultural Heritage Education Using the Metaverse Platform: A Case Study of "Pingyao Ancient City". IEEE Access. https://doi.org/10.1109/ACCESS.2024.3417256

Ginzarly, M., & Srour, F. J. (2022). Cultural heritage through the lens of COVID-19. Poetics, 92, 101622. http://dx.doi.org/10.1016/j.poetic.2021.101622

Godovykh, M., Baker, C., & Fyall, A. (2022). VR in tourism: A new call for virtual tourism experience amid and after the COVID-19 pandemic. Tourism and Hospitality, 3(1), 265-275. https://doi.org/10.3390/tourhosp3010018

Gössling, S., Scott, D., & Hall, C. M. (2020). Pandemics, tourism, and global change: A rapid assessment of COVID-19. Journal of Sustainable Tourism, 29(1), 1-20. https://doi.org/10.1080/09669582.2020.1758708

Leung, W. K., Cheung, M. L., Chang, M. K., Shi, S., Tse, S. Y., & Yusrini, L. (2022). The role of virtual reality interactivity in building tourists' memorable experiences and post-adoption intentions in the COVID-19 era. Journal of Hospitality and Tourism Technology, 13(3), 481-499. https://doi.org/10.1108/JHTT-03-2021-0088

Liu, Y. (2020). Evaluating visitor experience of digital interpretation and presentation technologies at cultural heritage sites: a case study of the old town, Zuoying. Built Heritage, 4(1), 14. http://dx.doi.org/10.1186/s43238-020-00016-4

Roussou, M. (2002). Virtual heritage: from the research lab to the broad public. Bar International Series, 1075, 93-100. https://www.researchgate.net/publication/243767413

Tourism Malaysia. (n.d.). Retrieved December 14, 2022, from https://data.tourism.gov.my/wp-content/uploads/2020/07/TOP-45-EXCURSIONIST-JAN-NOV-2022-website.pdf

Tussyadiah, I. P., Wang, D., & Jia, C. (2017). Virtual reality and attitudes toward tourism destinations. In Information and Communication Technologies in Tourism 2017: Proceedings of the International

©Authors, 2024

Conference in Rome, Italy, January 24-26, 2017 (pp. 229-239). Springer International Publishing. https://doi.org/10.1007/978-3-319-51168-9_17

Ye, D., Cho, D., Liu, F., Xu, Y., Jia, Z., & Chen, J. (2022). Investigating the impact of virtual tourism on travel intention during the post-COVID-19 era: evidence from China. Universal Access in the Information Society, 1-17. https://doi.org/10.1007/s10209-022-00952-1

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