e-ISSN: 2682-7506
Asian Journal of Applied Communication, 13(2), 87 – 92 (2024)

AUGMENTED REALITY AND SHORT VIDEOS: TRANSFORMING MUSEUM EXPERIENCES FOR VISITORS

Fakhrul Anuar Aziz[1]*, Husniza Husni[1], Noradila Nordin[2], Muhammad Syafiq Suhairy[1], Mhd. Zulfansyuri Siambaton[3], and Jasni Ahmad[1]
[1]*Universiti Utara Malaysia (UUM), Kedah, Malaysia.*
[2]*University for the Creative Arts, Farnham, United Kingdom.*
[3]*Universitas Islam Sumatera Utara, Medan, Indonesia.*
Email: fakhrul@uum.edu.my
**Corresponding author*

ABSTRACT

Augmented Reality (AR) has been increasingly popular to be used in museums as it can bring static displays to life, making historical exhibits more interactive, especially to cater to the vibrant younger generations. To narrate history, the use of AR coupled with short videos can be seen as an innovative strategy to attract visitors and engage them with rich historical events that are related to certain artifacts or displays. Such implementation allows for an interactive and immersive experience, enabling visitors to engage with artifacts and exhibits in ways that extend beyond traditional museum visits. Together, both AR and short videos offer a versatile medium to convey narratives, showcase expert insights, and present behind-the-scenes content. In this paper, the case of the Kota Kuala Kedah Museum, which has successfully implemented AR with short videos as its content, is analyzed. The impact of AR implementation on the museum's ability to attract and retain visitors, particularly in making historical narratives more accessible and engaging, is evaluated. The findings indicate that when used thoughtfully, AR and short videos increase foot traffic and deepen the exhibits' educational impact on visitors, making them more aware of what actually happened at the location hundreds of years back. For this, an interview was conducted with 15 visitors who experienced the AR features, and then content analysis was used to analyze the information. The findings reveal that AR manages to increase the interaction and immersion significantly, allowing the visitors to be more connected to exhibits. In this case, we can conclude that AR was particularly effective in improving the understanding of complex historical events by providing an interactive learning experience. However, technical issues such as glitches and usability challenges were noted, indicating the need for more seamless technology implementation. Nonetheless, this paper highlights the potential of AR to complement traditional exhibits while also emphasizing the importance of balancing digital and physical elements to maximize visitor satisfaction and educational value.

Keywords: Digital Technology; Augmented Reality; Short Videos; Museum experience

ARTICLE INFO
Article history
Received: 12 December 2024
Accepted: 30 December 2024
Published: 31 December 2024
Volume 13 Issue 2 December 2024

DOI: https://doi.org/10.47836/ajac.13.02.04

INTRODUCTION

The implementation and integration of digital technology in museums has transformed the way visitors engage with exhibits, from static displays to more interactive and engaging ones, providing room for enriching the knowledge and experience of the visitors. In the context of museums, Augmented Reality (AR) has emerged as a powerful tool to provide such interaction and experience. By overlaying digital information onto the physical world, AR allows museums to present content in a more immersive and engaging manner, bridging the gap between traditional exhibitions and contemporary digital expectations through interaction and engagement.

In this paper, an AR system has been developed specifically targeting visitors to Kota Kuala Kedah Museum. This system is based on the QR code scanning method allowing for easier access considering the museum's demographic and technology readiness among the visitors. The AR, once scanned is connected to a short video showcasing the historical event or narrative related to the exhibition, in this case, the location of the fort and various monumental sites around this outdoor museum. The storytelling plot in the AR system is depicting the war between Kedah and Siam from 1821 to 1842. The short videos consist of six modules showcasing the stories behind the Kacapuri gate, the defensive fortress, the Siamese attack, the story from the lense of Sherard Osborn, Tunku Muhammad Saad, and Tunku Kudin. To make it easier for visitors to find the AR application point, the service provider has placed six signboards with QR codes printed on them.

LITERATURE REVIEW

AR technology offers museums the ability to enrich their exhibits by providing additional layers of information that can be accessed through smartphones, tablets, or AR glasses. This can include historical context, 3D reconstructions, interactive elements, and even gamified experiences, making the visit not only informative but also entertaining. In the Smithsonian Institution, for instance, visitors can use AR to explore a detailed 3D reconstruction of the Apollo 11 command module, giving them an experience that goes beyond what traditional displays can achieve (Smithsonian Institution, 2019).

AR implementation in museums has shown its capability to enhance visitor engagement and learning outcomes significantly. AR can make static museum exhibits more accessible and understandable (tom Dieck, M. Claudia, & Timothy Hyungsoo Jung, 2017), particularly for younger audiences and those with limited background knowledge by allowing them to interact and engage in the story behind it. AR technology provides flexibility in terms of diverse learning styles by incorporating visual, auditory, and kinesthetic elements in its interaction, thereby accommodating a broader range of museum visitors from all walks of life.

The use of AR also has the potential to revolutionize the entire museum experience. Take the AR-enabled guide tours of museums, for example. Such guided tours can provide personalized experiences, allowing visitors to navigate exhibitions at their own pace, hence introducing flexibility while accessing content tailored to their interests (L. Pujol & E. Champion, 2012). This level of personalization and interactivity is indeed important in a highly interactive and connected society, where visitors expect more dynamic, flexible, and engaging experiences.

In addition to leveraging visitor experience, AR is seen to play a crucial role in preserving cultural heritage. AR can be the window to access digital replicas of artifacts and historical sites or perhaps provide access to content and artifacts that are too fragile or geographically inaccessible. For example, the "A Gift for Athena" AR app is used by the British Museum to allow visitors to explore the Parthenon Marbles by providing unprecedented detail, ensuring

that these artifacts can be experienced by a global audience, even if they are unable to visit the museum in person (British Museum, 2015).

To create awareness and understanding of the exhibits, short videos can be used together with AR in museums. According to Mayer's (2009) Cognitive Theory of Multimedia Learning, people learn better when information is presented in both visual and verbal forms rather than through words alone. This theory emphasizes the value of short videos in museums, where they can enhance visitors' understanding and retention of historical information by providing a multisensory experience. The combination of visuals, audio, and narrative structures in videos helps to create a more immersive learning experience that can evoke emotions and foster a deeper connection with the content (Mayer & Richard E., 2009).

Short videos can also be the catalyst for museums to extend their reach to mass audiences or visitors. Museums can share these invaluable videos on their websites, social media platforms, and digital archives, allowing visitors to access and learn from their collections regardless of their geographical locations. This wide access not only broadens the museum's educational impact but also fosters a more inclusive approach to history education (Vom Lehn, Dirk, & Christian Heath, 2014).

As digital technology seems to bring change to the museum experience, AR can be seen as one of the technologies with the potential to redefine how cultural institutions engage with the public. By making exhibits more interactive, informative, and accessible, AR is not only attracting new visitors but also enriching the educational impact of museum visits.

RESEARCH METHOD

This study utilized a semi-structured interviews to explore how augmented (AR) enhances visitor experience in museum exhibitions. A total of 15 participants which were selected through purposive sampling were interviewed to endure a diverse range of views. The semi-structured format allowed flexibility among respondents, which enabled respondents to share a detailed insights while keeping focus on the key topics such as experience, understanding, and suggestions towards improvement of the AR. Each interview lasted approximately 10 minutes, and all responses were recorded and will be transcribed for later analysis.

The data were analyzed using content analysis, a qualitative approach that allows researchers to identify patterns and themes within textual information given (Elo, Satu, & Helvi Kyngäs, 2008). Through open coding, responses were categorized into recurring themes, including user engagement, technical challenges, and the educational value of AR. This method provided a structured yet adoptable way to examine the complexities of visitor experiences. For example, this method allows us to capture both strength and weaknesses aspects of AR in the museum exhibition. Content analysis is particularly suited to analyzing subjective experiences and drawing out shared patterns across many different participant responses (Hsieh, Hsiu-Fang, & Sarah E. Shannon, 2005). By combining both interviews and content analysis, this study has gathered valuable qualitative insights into the role of AR in museums, highlighting its strength as well as areas for potential refinement.

Figure 1. A visitor interacting with an AR application at a historical site within the Kota Kuala Kedah Museum area by scanning QR codes.

RESULTS AND DISCUSSION

The analysis of the interview conducted from 15 respondents revealed several key themes regarding the impact of AR on museum visitors' experience. The most prominent theme was increased engagement, with participants frequently describing the AR as "interactive," "immersive," and "engaging." Many visitors felt more connected to the exhibits through AR and appreciated how it works, which offered a novel and dynamic way to explore museum content. This observation supports earlier studies that highlight AR's ability to blend physical and digital experiences, which thereby also enhance visitor interaction (Kang, Myunghwa & Ulrike Gretzel, 2012). However, some respondents noted that while AR was indeed enjoyable, it occasionally distracted them from focusing on the actual present's artifacts, which suggests a need for a better balance between digital elements and traditional exhibits display.

Another important theme was the role of AR to improving understanding of exhibits. Respondents shared their comment that AR helped them visualize complex historical events and provided additional context for certain artifacts. For example, one participant remarked that AR made the exhibits "come to life," offering clarity that static displays alone could not achieve. This aligns with previous findings which re-emphasize the AR's educational, as it offers an interactive learning tool (Pujol, Laia, Maria Roussou, etc., 2012). Among respondents, parents also noted that AR features were particularly effective, which made the exhibits more accessible and engaging for children, underlining its appeal to audiences with a variety of age groups.

While many visitors praised AR performances, however, several respondents noted some technical issues emerged, including glitches and difficulties with operating the AR system. Although these issues did not overwhelmingly detract from the overall experience, they did cause frustration for a few visitors. This suggests that while AR can enhance engagement, they highlight the importance of ensuring that AR applications are both reliable and user-friendly. Similar studies have been made emphasizing the importance of intuitive technology design in AR applications in museums (Luca, Mortara, & Catalano, 2016).

Finally, the respondents expressed mixed opinions on AR compared to traditional exhibits. While the majority of respondents welcomed the innovative experience, a few would prefer the traditional displays as their choices, arguing that AR could sometimes overshadow the physical artifacts. Additionally, others suggested that the content offered through AR could be more in depth, as its novelty tended to wear off after initial use. These comments indicate the needs for careful consideration of AR's role in museum visits, ensuring that it complements

rather than replace, traditional museum elements, while providing meaningful, content-rich experiences.

CONCLUSION

This paper explored the impact of AR on enhancing visitor experience in museum exhibitions through the implementation of AR in Muzium Kota Kuala Kedah, Kedah, Malaysia. To gauge visitor understanding and experience of the historical events that took place at the site, interviews were performed with 15 participants. This interviews with 15 participants revealed that AR significantly contributes to creating interactive and immersive museum experiences, making visitors feel more connected to the exhibits. AR allows visitors to engage with historical artifacts in ways that are both dynamic and informative, enriching their understanding of the history behind the living artifacts at the museum. By blending physical artifacts with digital content, AR fosters greater engagement and deepens visitors' appreciation of historical narratives.

The findings also highlighted that AR was also shown to enhance the educational outcomes of museum visits. Respondents reported that AR made it easier to visualize and comprehend complex historical events, adding depth to their understanding of the exhibits. AR's ability to make exhibits more accessible to a wider audience, especially children, further underscores its potential as an educational tool. However, technical issues and the challenge of balancing AR with traditional exhibits were identified as areas needing attention.

Overall, while the findings reveal exciting opportunities for AR to be implemented at museums to enhance experience via increased levels of engagement and deepen understanding of history, it must be implemented carefully and thoughtfully. This includes addressing technical challenges and ensuring the content offered through AR is valid, rich, and meaningful while balancing its use with traditional exhibit features. Future research could expand on these findings by exploring larger sample sizes and investigating the long-term effects of AR in cultural institutions to identify best practices for its implementation.

REFERENCES

British Museum. (2015). *A Gift for Athena: Explore the Parthenon Marbles*. Retrieved from https://www.britishmuseum.org

Elo, S., & Kyngäs, H (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 6291, 107-115.

Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, *15*(9), 1277-1288.

Kang, M., & Gretzel, U. (2012). Effects of podcast tours on tourist experiences in a national park. *Tourism Management*, *33*(2), 440-455.

Lehn, D. V., Heath, C., & Hindmarsh, J. (2014). Video-Based Interaction in Museums and Galleries: Two Cases. *New Media & Society*, *6*(1), 21-41.

Luca, D., Mortara, M., & Catalano, C. E. (2016). AR museums: Envisioning the future of interactive storytelling and education. *Journal of Cultural Heritage*, *20*, 60-71.

Mayer, R. E. (2009). Multimedia Learning (2nd ed.). Cambridge University Press.

Pujol, L., & Champion, E. (2012). Evaluating presence in cultural heritage projects. *International Journal of Heritage in the Digital Era*, *1*(1), 5-24.

Pujol, L., Roussou, M., Poulou, S., Balet, O., Vayanou, M., & Ioannidis, Y. (2012). Personalizing interactive digital storytelling in archaeological museums: The CHESS project. Proceedings of the 40th annual conference of Computer Applications and Quantitative Methods in Archaeology (CAA 2012).

Smithsonian Institution. (2019). Apollo 11: Reconstructing History through Augmented Reality. Retrieved from https://www.si.eduEmpathy as speech manipulation target in pre-election discourse of Great Britain. *Asian Journal of Applied Communication. 11*(3), 97-107.

tom Dieck, M. C., & Jung, T. H. (2017). Value of augmented reality at cultural heritage sites: A stakeholder approach. *Journal of Destination Marketing & Management*, *6*(2), 110-117.