This is authors' final manuscript to be presented at Enter 2016 in Bilbao and published in e-Review of Tourism Research-ENTER 2016: Volume 7, Research Note.

tom-Dieck, M. C. and Jung, T. (2016). Value of Augmented Reality to Enhance the Visitor Experience: A Case Study of Manchester Jewish Museum, *e-Review of Tourism Research.* Vol. 7, pp. 1-5 (ISSN: 1941-5842)

Value of Augmented Reality to enhance the Visitor Experience: A Case study of Manchester Jewish Museum

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Abstract

There is an increase in Augmented Reality (AR) adoption in the tourism sector and increasingly visitor attractions, museums and art galleries start to use AR for the enhancement of the visitor experience. However, smaller organisations often fear high investments without the proof of concept due to risks of failures. Therefore, the present study uses a small museum in Manchester to investigate the value of AR for different target markets, visitors and the museum itself. Internal and external data collection was conducted using focus groups with eight museum visitors and ten interviews with museum staff as well as teachers. Findings show that AR is considered the way to move forward to preserve history, enhance visitor satisfaction, generate positive word-of-mouth, attract new target markets as well as contribute to a positive learning experience.

Keywords: Augmented Reality; Museum; Visitor Experience; Exploratory Interviews

1 Introduction

The pace of Augmented Reality (AR) adoption in the tourism sector is speeding up. While in 2012, Yovcheva et al. were one of the first to identify the potential of overlaying digital content onto tourists' real environment; nowadays many destinations and organisations have either implemented or started to think about the opportunities of this new and innovative technology for the enhancement of the tourist and visitor experience. The last two years saw a large number of tourism scholars conducting research on AR user requirements (Han et al., 2014), AR acceptance and behavioural intentions (Jung et al., 2015; tom Dieck et al., 2015), and the creation of an AR tourism experience (Yovcheva et al., 2013; 2014), as well as AR tourism gaming (Linaza et al., 2013). Although larger organisations were able to implement mobile AR applications to test the opportunities for visitor engagement; smaller organisations with limited resources need to carefully examine the potential

before investing resources. This was supported by Chesher and Skok (2000) who revealed that many small organisations fear that costs of investing in technologies do not outweigh benefits received afterwards. Therefore, the present study uses the case study of a small museum, working primarily with volunteers, to examine the perception towards the value of AR.

2 Value of Augmented Reality for Tourism and Museum Experience

AR is defined as the overlay of computerised information in the real environment (van Krevelen and Poelman 2010). Developed in 1968, AR has been applied to many industry sectors (Jung et al., 2013) and more recently, the tourism sector started to understand the opportunities of overlaying digital content onto tourists' real environment (Jung et al., 2015). Navigation functions and the potential to overlay content without disturbing the real environment are just some advantages that make AR so attractive to the tourism industry (van Krevelen & Poelman, 2010). Likewise, it allows historical buildings to be brought back to life through re-enactments of historic events and explanations of meanings (Gervautz & Schmalstieg, 2012). Technology advancements, moving from marker-based to marker-less, have made AR even more suitable for the tourism context as tourists can retrieve content based on GPS-locations. In addition, enhanced image recognitions allows tourists to scan buildings and objects and receive content without designated QR codes (Wang et al., 2013). This development has made the tourist AR experience more user-friendly and efficient thus, is thought to contribute to the overall acceptance of these applications (tom Dieck and Jung, 2015). Previous research clearly shows the potential of AR to create and interactive and enjoyable tourism experience (Yovcheva et al., 2014; tom Dieck and Jung, 2015) while in the museum context, AR may add another element of learning (Yoon et al., 2012). As the ability to learn is dependent on learners' collaborative participation in the learning process, interactive features of AR applications are able to facilitate active learning (Dunleavy & Dede, 2014). Telling hidden stories and enhanced content are some examples of how museums can use AR to enhance the visitor experience (Leue et al., 2015).

3 Methods

This exploratory study is the first part of a mobile AR project at Manchester Jewish Museum aiming to test how new and innovative technologies such as AR can enhance the visitor experience. Interviews were conducted between the 14th and 16th of July 2015 and included the museums' CEO, curator/manager, four volunteers and four school teacher. In addition, one focus group with five senior visitors was conducted to gather the opinion of the older target market on 14th of July 2015. Furthermore, one focus group with three younger visitors was conducted on 16th of July 2015. The sample was chosen to get a fair representation of opinions, internally and externally, about the value of AR for the museum. Prior to the interviews/focus groups, participants were provided with an explanation of AR as well as a short video demonstrating AR in the museum environment. The reason to conduct focus group for the visitor groups was to gather different opinions and due to the novelty factor of AR, it was hoped that visitors feel more free to talk about opportunities of new

technologies in a group. On the other hand, museum staff and teachers were expected to have in-depth information and thus, interviews were perceived as most appropriate. The semi-structured questions covered the areas: prior AR experience, perceived value of AR for the museum experience, suitability for target markets, potential of enhancement of visitor experience through AR, essential content required for the museum AR application. The phrasing of questions varied between participant groups. As this stage of the study was exploratory, more questions and areas were discussed in addition to the previously prepared questions. The interviews and focus groups were analysed using thematic analysis.

4 Findings and Discussion

In the findings section, volunteers are referred to V1-V4, teachers to T1-T4, senior visitors to SV1-SV5 (above 60 years of age), younger visitors (up to 39 years of age) to YV1-YV3, the chief executive officer to CEO and the office manager and curator to OM.

4.1 Value for different target markets

School groups are one of the main target markets of Manchester Jewish Museum and all participants throughout recognised that AR applications would be wonderful educational additions to the museum experience for the younger audience (V1-4, OM, CEO, T1-4, SV1, SV4, YV1-3). SV4 suggested that "it would be very useful for young people and make them aware and more interested in going into a museum". However, interestingly, although not owning a smartphone, SV1, SV2 and SV3 confirmed that the availability of AR applications would also add to the experience of the senior visitor market. According to SV1, seniors could bring their own tablets or it could be offered by the museum and the enhanced availability of information would bring a new dimension of interactivity and learning to the experience. This was also confirmed by the younger visitor market who confirmed that nowadays all different age groups engage with multi-media and thus, providing devices or applications to download can significantly add to the intention to return or spread positive word-of-mouth (YV1). Interestingly, four interviewed teachers confirmed that they would welcome the availability of AR as it contributes to the teaching and learning experience, especially if paired with the idea of AR gaming (T1).

4.2 Value for museum

On the one hand, the CEO and Office Manager & Curator as well as volunteers revealed that the museum needs a fresh approach of visitor engagement to ensure strong future footfall numbers, visitor satisfaction and positive word-of-mouth. In addition, the attraction of new target markets, such as community groups, and a high level of schoolchildren engagement were considered important benefits for the museum according to museum staff. Clever usage of space was considered one of the main factors of implementing AR at Manchester Jewish Museum (CEO, OM). Providing additional content without disturbing the surroundings of visitors was considered an important aspect of AR for the visitor experience according to van Krevelen and Poelman (2010). The CEO believed that AR has the potential to enable

visitors to learn more about the synagogue and the history of Jewism without cluttering the space with displays. Finally, it was identified that the local community plays an important part for the museum and therefore, using AR for telling personal stories could enable the museum to attract an important target market (CEO). An AR application could follow the idea of a personalised trail throughout the community. This idea would allow visitors to conduct personal tours through the local community by linking Jewish heritage sites and history (CEO, V2). So far, volunteers are needed to guide visitors and tell personal stories however, AR and mobile applications are perceived the way to move forward in order to preserve knowledge and history for generations to come (V2). Therefore, the preservation of history, historic buildings and volunteer's memories were considered an enormously important aspect as a key factor for AR investment decisions.

4.3 Value for visitor experience

To date, as in many museums, guided tours are an important part of the experience at the Jewish Museum in order to tell the story behind displays and give personal recollections of the past (V2). AR would allow visitors to gather more in-depth information by themselves which was considered a big advantage for senior visitors (SV1-2). SV1 revealed that an AR application would enable visitors to get as much content as required, allowing for a more interactive and enjoyable experience. SV2 added "that it brings it more to life, and explore more details". The CEO, OM and V3 furthermore confirmed that traditionally synagogues were spaces of getting-together, interactions and loud noises however, the transformation into a museum has made Manchester Jewish Museum a quiet place. Therefore, using technologies such as AR is hoped to show visitors the original way synagogues existed, bringing back life into the historic building. In addition, there was a common agreement within the younger visitor focus group that AR allows for storytelling and getting to know the story behind displays (YV1-3). In addition, YV3 identified the potential for personalisation through AR, allowing visitors to gather information based on interest-points rather than a predefined tour. Also, most of the text passages are in Hebrew which allows for only limited understanding of displays and according to V3, AR should be used to allow translations and thus, add value to the visitor experience. Finally, SV1 felt the need to add that interaction within a museum makes visitor remember more which is beneficial for the learning experience which is supported by previous research on the strength of AR for active learning (Yoon et al., 2012).

5 Conclusion

Overall, this exploratory study has found that AR can add value to Manchester Jewish Museum, from and internal and external point-of-view. Both visitors and employees alike felt that the implementation of this new and innovative technology could add value and AR is considered the way to move forward to preserve history, enhance visitor satisfaction, generate positive word-of-mouth, attract new target markets as well as contribute to a positive learning experience. Interviews with museum staff have found that the synagogue should be brought back to life and according to Gervautz and Schmalstieg (2012), AR is an ideal technology to re-enact historic events without interfering with original architecture. Research on AR in the

museum context is still scarce, particularly focusing on exploratory approach and the gathering of opinions on value of AR from both internal and external stakeholders and therefore, this present study adds to the pool of knowledge in this area. Previous studies in the tourism context already found that AR has the potential to enhance the visitor experience (Jung et al., 2015; tom Dieck & Jung, 2015) and interview and focus group participants at the Jewish Museum confirmed these findings. Implementing AR is considered the way forward and therefore, future research is recommended to focus on the design and implementation of an AR to enhance visitor experience.

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Acknowledgements

This study was conducted as part of an Augmented Reality project at Manchester Jewish Museum and is funded by the Heritage Lottery Fund. We would like to thank Manchester Jewish Museum for the opportunity to conduct this project and their kind cooperation.