

Citizen Curation of Digital Cultural Heritage through the Co-design of a Virtual Reality Museum

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Abstract. This case study presents a prototype of the “Pop-up VR Museum” in which users can interact with virtual design objects from the collection of Design Museum, Helsinki and listen to stories about Finnish design objects. These stories have been contributed by individuals and communities through their voluntary participation in targeted workshops and other events organized by museum professionals from the Design Museum. The VR application is being designed as a part of SPICE, an EU Horizon 2020 funded research project dedicated to the idea of “citizen curation” of cultural heritage. Gamification has been implemented in the experience allowing playful interactions with objects to view, engage with, and experience them from different perspectives. The Pop-up VR Museum has been tested and evaluated with more than 300 users and the demo provides insights for other museums and designers aiming to create inclusive VR experiences.

Keywords: Museums, Virtual Reality, Cultural Heritage, Design, Accessibility, Inclusivity, Senior Citizens, Museum, Collection

1 Introduction

The Design Museum Helsinki, the national specialist museum for design in Finland, and Aalto University are co-designing the “Pop-up-VR Museum” as one of the five case studies in the EU-H2020 SPICE project focused on “citizen curation”. The SPICE project is aimed at enabling museum audiences to share interpretations and reflections of cultural heritage to gain better understanding of other communities and increase social cohesion and participation in the society [1]. In this case study, the Pop-up VR Museum is being designed as a Virtual Reality (VR) museum providing an experience in which people can access, interact, and engage with a selection of design objects from the Design Museum using a portable VR headset. In addition, users can read and hear stories and comments about the objects narrated by different individuals engaged with the application thereby receiving interpretations and providing reflections.

With the aim of increasing inclusivity and participation to cultural heritage, certain targeted groups have been selected for the research project. The communities targeted in the Finnish case study are senior citizens, rural dwellers, and asylum seekers. Mediators such as museum professionals play a key role in conducting co-design workshops with these groups wherein design objects from the museum collection are presented to elicit sharing of stories about cultural heritage. The collected stories have been subsequently transcribed or recorded and translated and incorporated into the Pop-up VR Museum.

2 Design of the experience

Prior to the design of the Pop-up VR Museum, personas were created representing the senior citizens, rural dwellers, and asylum seekers. User-experience (UX) maps were created for each persona outlining their assumed actions, emotions, ethical considerations, potential breakdowns, and recommendations for each touchpoint in their journey. This process helped designers of the experience to identify challenges before beginning the design process and influenced many decisions. The UX maps have also been iterated constantly through several rounds of testing the prototype.

The experience of the Pop-up VR Museum is comprised of a tutorial scene and the main scene. During the tutorial, individuals learn to use the controllers and input their preferred language, age group, and game experience. The main scene offers users the ability to interact with the virtual design objects and listen to stories about them contributed by a variety of individuals and communities.



Fig. 1. A screenshot from the main scene in the Pop-up VR Museum application wherein virtual design objects are available for users to select and listen to stories about them.

The VR experience is accessible on portable HMDs that can be transported to many locations easily. Once the VR application is set up, navigation within the experiences does not require the use of complex HMD controller buttons. Additionally,

real-world anchors, such as the table and chair in the physical environment, reduce motion-sickness and assist people with limited mobility. The Pop-up VR Museum has been presented at several senior care homes for testing as well as co-design workshops to collect stories and engage further with cultural heritage.

3 Research methods and results

A combination of usability testing and gameplay analysis was used to record the actions of those interacting while they navigated through the Pop-up VR Museum [2] [3]. As per the guidelines of GDPR [4], participants were made aware of how their data was being collected for the purposes of research within the SPICE project. Data points of interest include: i) preferred language, ii) age-groups, iii) artefacts selected for interaction and the nature of interaction, iii) stories listened to and contributed, iv) gameplay time from the beginning to the end. After their experience, participants who volunteered also filled up a post-experience questionnaire elaborating on their previous experiences with VR, most striking and memorable aspects of gameplay, feelings of sense of presence, and challenges encountered.

So far, the results from more than 300 test-users indicated a variation in the nature and level of engagement based on their preferred language and identified age-groups. While senior citizens who selected Finnish as their language spent much more time in the experience listening to contributed stories as well as conversing with mediators, younger generations that selected English were more likely to engage with playful interactions with design objects in the experience. In the post-experience questionnaires, most of the participants reported feeling “immersed” or experiencing a “sense of presence” in the Pop-up VR Museum. Although some of them encountered difficulties putting on the headset and navigating within the VR environment, many of them also found certain objects and stories to be memorable as well as striking.

4 Discussion

Each Case Study in the SPICE project is focused on researching how methods and tools for citizen curation can facilitate inclusion and social cohesion. This is carried out using co-design wherein an approach to inclusion is implemented so that excluded groups and other citizens can for example engage with artefacts, create stories, and express opinions. These types of contributions help to build so-called bonding capital within diverse communities. Similarly, the accumulated interpretations and reflections can be interconnected and shared to build the bridging capital which helps in promoting tolerance and thereby facilitating social cohesion. The bonding capital in the Pop-up-VR Museum is the capacity to enable senior citizens and other people living far from museum services to engage with culture and share their personal stories and interpretations of culture and Finnish design heritage with their communities. Respectively, the bridging capital is the capacity of the Pop-up-VR Museum application of

making artefacts and interpretations available and invite new contributions in virtual and touring galleries to generate dialogue and increase understanding across generations and geographical communities. Here, mediators such as museum professionals and caretakers of the elderly play crucial role not only in assisting users, but discussing with them about the experience, cultural heritage, and VR as well.

5 Conclusion

The case study of the Pop-up VR Museum demonstrates how museum audiences can share interpretations and reflections of cultural heritage and gain a better understanding of other communities. For citizen curation, it is also essential to increase accessibility and inclusivity as well as involve mediators who can also assist in the co-design process with participants. Overall, most of the participants found the experience to be interesting, despite encountering some difficulties and we envision the prospects for repeated engagement with the application.

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