Design Standards for Place-Based Immersive Experiences

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1. Introduction

The i-word, "immersion", is increasingly in demand from customers in visitor and cultural attractions. This includes the use of a wide range of technologies, from large video-mapped installations for wider audiences to Head Mounted Displays for more intimate experiences, 360 films, spatialized audio for explorations into Virtual Reality (VR) and Augmented Reality (AR) in-site specific contexts. However, there are a number of obstacles to its wider take-up among creative industries: audience perception, technical constraints, day-to-day operational, investment in technology and the demands of creating truly immersive media.

The Glasgow School of Art (GSA) and the digital studio ISOdesign propose an interdisciplinary pilot project in the context of the AHRC 'Next Generation of Immersive Experiences' challenge that takes a holistic view of the issues around practical design, development and deployment of an Immersive Experience related to the themes of Place and Memory.

This paper presents a creative curatorial research which aims to create a prototype interactive and immersive exhibit using the Laocoon plaster cast statue that was destroyed in the recent fire incident at the Glasgow School of Art. Not only the project outputs propose a digital AR/VR experience, but also a preliminary set of standards relating to the technology which will help mitigate real and perceived obstacles that currently obstruct deployment of this technology more widely throughout the sector for diverse user-groups.

2. Methodological Approach

We propose using the Rich Pictures method (Checkland, 2000) to facilitate co-design/co-creation. It consists of a diagramming technique that is part of Soft Systems Methodology to help to capture stakeholder's views non-confrontationally. Rich Pictures are a simple, but powerful, tool for addressing complex problems with diverse stakeholders and can support process improvement especially in the kind of situation where it is problematic to grasp a holistic understanding of what the problem actually is, and thus identify ways of solving it. While this element of our methodology is not in itself new, applying it to the world of developing Immersive Experiences is.

We thus build upon existing participatory design techniques to propose a way of transcending preconceived notions of existing technologies, and encourage key stakeholders/influencers from the creative industry and end-users to postulate future forms and uses of technology by emphasizing current interactions and activities.

3. Prototype Development and evaluation

We have adopted a rapid application development approach to the design and development of a AR and VR prototype. On the basis of the user requirements obtained from the Rich Picture workshops we have defined the functionalities of a user-centered transformative interactive experience. This led to the technical and artistic implementation shown in Figure 1, which provides visitors with an intimate immersive and interactive curational experience around the Laocoon plaster cast statue. The experience can be provided in a VR format using the HTC Vive and Leap Motion, and an AR format using Android tablets.
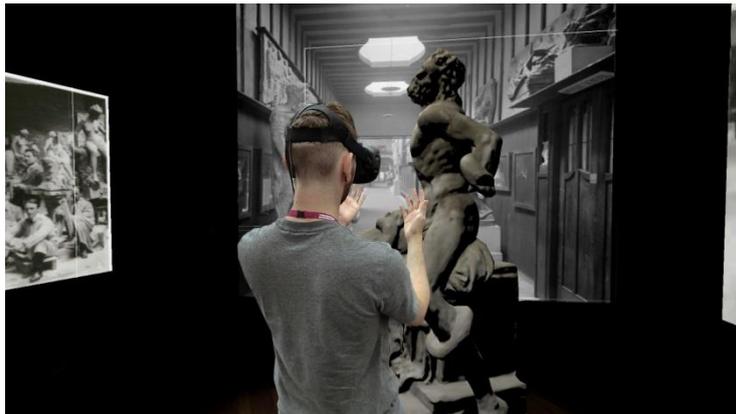

Figure 1. Immersive and Interactive engagement with the Laocoon plaster cast statue.

We now aim to conuct a series of user-evaluation sessions to evaluate users' attitude towards the usability of the prototype application in terms of its efficiency, effectiveness and their sense of satisfaction when using the application. Outcomes will serve of basis to develop guidelines towards effective VR/AR experiences.

Finally, we aim to establish these guidelines as a set of standards to help creative industries to pursue their practice involving VR and AR.

Acknowledgements

References

Checkland, P. (2000). Soft systems methodology: a thirty year retrospective. *Systems research and behavioral science*, *17*(S1), S11-S58