Understanding Visitors' Immersive Experiences in a Multisensory Architecture Exhibition

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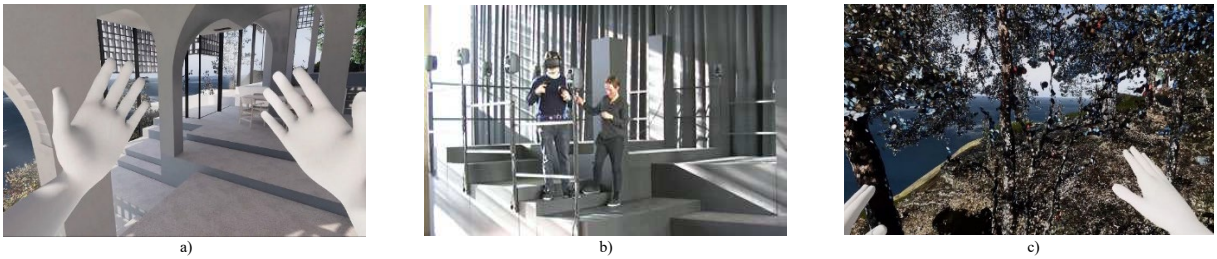
Abstract: This poster describes visitors' and museum practices in a multisensory virtual reality (VR) architecture exhibition. The DBR study involves an interdisciplinary collaboration between a national architecture museum, university researchers and a renowned architecture firm. We present analysis of interview data from 17 pairs of visitors to understand their immersive experiences. Findings contribute to our understanding of immersion and to the design of environments that support learning about architecture.

Introduction

There has been a growing interest in the design and implementation of immersive virtual environments in museum exhibition design (Sylaiou et al., 2009; Carmo & Cláudio, 2013; Bekele et al., 2018). Immersive virtual experiences affect visitors' senses and allow them to interact and feel as though they are really in the virtual environments (Slater & Wilbur, 1997; Bekele et al., 2018). One way to examine these experiences is to investigate the design´s dimensions, activities and choices (Sylaiou et al., 2009; Pescarin, 2012). Yet we still have little consensus and understanding about what constitutes an immersive experience and how such experiences relate to learning. In this study, we examine the immersive installation developed by an interdisciplinary team (including architects, museum curators, a VR-designer, a soundscape expert, and university learning researchers) for a national architecture museum. The broader aim of the project is to explore the potential of virtual reality in creating new sensory and meaning making experiences for museum visitors in an architecture exhibition. In the multisensory exhibition: "The Forest in the House. Exploring parallel realities", visitors' experience a full-scale physical, virtual, and auditory environment. In this poster we examine different known components of immersion, by looking at post-visit interview data from the visitors' exhibition experiences. We ask the following research question: *How do we understand visitors' immersive experiences in a multisensory architecture museum installation?*

Methods

Case: The study was conducted as a design-based research project (Collins, Joseph, & Bielaczyc, 2004), where the interdisciplinary team designed and investigated the multisensory architecture exhibition. The exhibition included a built physical structure (Figure 1b) which corresponded with a designed virtual environment (Figures 1a and 1c). A large array of speakers as well as participant headphones produced sound that also corresponded to the environment. Participants were invited to explore in pairs, with 1 partner wearing headset, feet and hand sensors, and headphones. The other partner served as a conversational partner and safety guide. The virtual reality consisted of 2 scenes, a natural landscape produced from a 3D scan of a waterfront forest, and a house inspired by the site and designed to show the architectural features present in nature.



a) b) c)

Figure 1 (a,b,c,). Visitors exploring the exhibiton: *"The Forest in the House. Exploring parallel realities".*

Data and analysis: Collected data included video recordings from 17 recruited pairs of visitors as they experienced the exhibition, followed by semi-structured group interviews of the same pairs. We transcribed the interactional video and interview data, identified sequences of talk and activity in which immersive and sensory experience were potentially relevant, and iteratively looked for patterns and developed codes in NVivo. We first analyzed the interactional video data, and then we focused on the interview data, refining the codes accordingly.

Coding across these data types, gave us both rich knowledge about visitors' unfolding experiences and their descriptions of the experience. In this poster we will focus on the interview data. To address our research question, we grouped and reduced the codes into five components. These key components can help us describe the visitors' experiences, as well as understand exhibition design choices, qualities, and implications.

Findings

Visitors' feelings of presence and sense of "being there" are related and influenced by the exhibition design (Slater & Wilbur, 1997). Figure 2 below shows which components were found to be the most important for visitors' sense of immersion as reflected by the ways they characterized their experiences. Our poster will present illustrative data of these components of immersion. Our intention is not to reduce immersion to these categories but to identify analytic lenses to better understand visitor reflections.

Key components

- Social experience clarifies that the visitors' collaborative interaction was important for their presence, joint attention, navigation and shared enjoyment trough the exhibition.
- Physical experience explains visitors' movements, touching, "sense of being there", interaction in /with the parallel realities.
- Sound emphasizes the central influence soundscape had for visitors' senses, connection between picture and sound, and strengthen the experience "closer to reality".
- Architecture/ nature space refers to visitors' perception and exploration in the architecture and nature scene /space, the relationship between the scenes and in what ways the exhibition title: "The Forest in the House" make sense for them.
- VR/ technology explains visitors' perception on how the technology worked /not worked, description of the exhibition and suggestions for future VR-design.

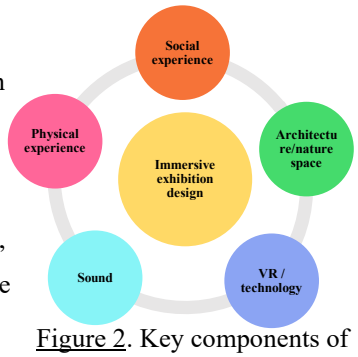


Figure 2. Key components of immersion in exhibition design and experiences.

Implications

Our findings suggest that immersive experiences are more nuanced than simply the extent to which museum visitors feel as though they are present in a real place. Immersion can be understood and analyzed more precisely by attending to the above components which collectively contribute to such experiences. We have focused on the architecture museum specifically as a setting where immersion and architectural meaning making processes are intertwined. However, future work could extend such components to VR and multisensory experiences more generally. These findings also give insight into the design and evaluation of immersive multisensory exhibitions by highlighting aspects for exhibition designers and researchers to pay attention to support meaning making experiences with architecture.

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