Exploring the perspectives of digital natives and digital immigrants on virtual reality as a playground in museums. A mixed methods approach.

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EXTENDED ABSTRACT

The use of virtual reality (VR) in exhibitions not only allows visitors greater participation, but also offers museums the possibility to convey content in a novel way. Studies indicate that VR in the form of gamified elements, so-called "edutainment" (Moesgard et al., 2015, p. 388), has a positive impact on knowledge gain and return intention in museum exhibitions (Puig et al., 2020). However, the extent to which individual media users have different expectations of virtual edutainment is rarely considered, leaving a particularly relevant context for public playgrounds unexamined. We fill this research gap by using the notion of digital immigrants and natives (Prensky, 2009), which describes media users who familiarized with the use of digital media in earlier or later stages in life. However, research indicates that age shouldn't be considered as a sole context for media literacy (Bekebrede, Warmelink & Mayer, 2011) which is why the notion of digital natives and immigrants can be understood as conceptual combination of age, media socialization and personal (media) experience. Building on this our study aimed to investigate the following research questions.

RQ1: How do museum visitors assess virtual edutainment in museums?

RQ2: Which categories matter for museum visitors to perceive VR as a playground?

RQ3: To what extent do these expectations and attitudes differ with regard to the generation of media users?

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The study took place in cooperation with a local art museum. Visitors were offered the opportunity to explore the ballroom of a former baroque town house as a VR model. At this point, visitors had already gained knowledge about the ballroom as it was part of an ongoing exhibition in the museum. The exploration of the VR model was presented as an opportunity to gain better understanding of art pieces in the ballroom. We gathered a convenience sample of volunteer participants out of the regular audience of the museum. As a methodological approach, a mixed methods approach was chosen, consisting of a quantitative questionnaire with closed and open questions as well as a participant observation. For the quantitative survey, items from a study by Jung et al. (2016) were used. In addition, open-ended questions were used to inquire about prior VR experiences, attitudes towards VR, and expectations of VR in museums. The field phase of the project took place on four Sundays in June 2023. Visitors were able to explore the virtual ballroom with the help of two VR glasses and to fill out the questionnaire afterwards. The constant presence of two researchers during the experience enabled participant observation. A total of 49 people (n = 49) completed the questionnaire. Participants were 18 to 29 years old (n = 11), 30 to 49 years old (n = 15), 50 to 69 years old (n = 14), and 70 years old or older (n = 9). Most participants from 18 to 49 years had high level of comfort with digital media and previous experiences with VR. Hence, we categorized them as digital natives. Participants from 50 to 70 years often expressed confidence in their media literacy but were largely unexperienced in VR use. We categorized this group as digital immigrants.

Our field observations were analyzed by using the logic of grounded theory (Glaser & Strauss, 2017), combined with a comparison of mean values in questionnaire results. Through this method we identified four central categories, which are shaping the VR experience of museum visitors: Interaction, immersion, usability and prevalence. Study results indicate that the integration of VR elements is generally met with openness and curiosity among all visitors. However, previous experiences with VR and age contexts play a major role regarding to the expectations of VR in the exhibition.

Young and VR-experienced people approached the VR use with high expectations for interaction, making this category fundamental to their expectation of an immersive experience. Digital immigrants assessed interactive elements more as an additional challenge in VR use, that didn't automatically contribute to their immersion in a positive way. Meanwhile the group of digital natives perceived interaction as key to an immersive experience, digital immigrants defined immersion more as the level of detail and historical accurateness VR could offer. Regarding usability, digital immigrants, both with and without prior VR experience, often expressed a desire for VR to be as user-friendly as possible. These results pointed out that a VR experience that would have fulfilled digital natives' standards of high immersion, might have been an overwhelming experience for unexperienced visitors. Digital natives expressed positive feelings about more prevalent VR elements in exhibitions, encouraging museums to integrate VR experiences regularly. Digital immigrants on the other hand were concerned about a more prevalent VR replacing the actual visit of museums.

As a conclusion, we therefore recommend focusing scientifically on the question how different contexts like media literacy and socialization shape individual perceptions of VR as a playground and our expectations of it. Additionally, future research on this topic could include the perspective of museum-employees. By doing so, inclusive playground concepts might be developed that are able to connect various audiences in public spaces.

REFERENCES

Bekebrede, G., Warmelink, H. J. G., & Mayer, I. S. (2011). Reviewing the need for gaming in education to accommodate the net generation. Computers & Education, 57(2), 1521-1529.

Glaser, B., & Strauss, A. (2017). Discovery of grounded theory: Strategies for qualitative research. Routledge.

Jung, T., tom Dieck, M. C., Lee, H., Chung, N. (2016). Effects of Virtual Reality and Augmented Reality on Visitor Experiences in Museum. In A. Inversini & R. Schegg (Eds.), Information and Communication Technologies in Tourism, (p. 621-635). Springer International Publishing.

Moesgaard, T. G., Fiss, J., Warming, C., Klubien, J., & Schoenau-Fog, H. (2015). Implicit and explicit information mediation in a virtual reality museum installation and its effects on retention and learning outcomes. In Proceedings of the 9th ECGBL (387-394).

Prensky, M. (2009). H. sapiens digital: From digital immigrants and digital natives to digital wisdom. Innovate: journal of online education, 5(3).

Puig, A., Rodríguez, I., Arcos, J. L., Rodríguez-Aguilar, J. A., Cebrián, S., Bogdanovych, A., & Piqué, R. (2020). Lessons learned from supplementing archaeological museum exhibitions with virtual reality. Virtual Reality, 24, 343-358.