

Abstract
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Visual Art for the Visually Impaired: Designer-User Interactions in Developing 3D-Printed Tactile Models to Facilitate Access to Museum Art

One of the many issues that museums and art galleries face today as public spaces is the issue of accessibility. One of the roles of museums in society is providing access for all visitors to their exhibitions and artefacts regardless of age, education, language or disability. However, the museum as an educational institution and preserver of history has become established on a fundamentally visual notion. Museum experiences rely heavily on the visual sense, from observing artefacts behind glass to reading information packages off plaques and because of this has established inaccessibility for the visually impaired community. Museums have so far addressed this issue with audio guides, braille description and special guided tours. However, museum culture in recent years have begun to change, acknowledging that learning experiences can be improved through accessing knowledge through the other senses. For the visually impaired community, there has been an emphasis on touch. However, allowing access to touch can be difficult especially when dealing with fragile artefacts that are stored for conservation. This case study focuses on a technology that addresses this issue, 3D printed tactile paintings. In partnership with the Kunsthistorisches Museum in Vienna, VRvis, a visual computing research group based in Vienna has developed a process in which 2D artworks such as paintings are translated to produce 3D haptic images specially for the visually impaired visitor. Using STS approaches, this thesis focuses on how this technology was developed, the design practices, the user imaginaries that were present during development, how the users were involved in the process of development and how the context of disability influenced the design process. This technology is situated in a very fascinating context that finds the developer in a unique situation where they are designing for a specific group that they themselves can not subscribe to or experience, resulting in a very interesting selfawareness on their dependence on user input during the development phase. This case study explores this and offers a number of key observations surrounding these unique experiences.