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Metadata, Digital Museum Spaces and Accessibility for Persons with Impairments

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Abstract

This study examines the intersection of metadata and accessibility in the digital museum space. While virtual museums can remove physical barriers to heritage institutions, virtual spaces still have barriers for certain impairments. Work done in the field of digital libraries has shown that accessibility metadata can help to remove some of those barriers. This exploratory research project aims to provide understanding of the ways that metadata in virtual museum spaces is being used and how that metadata can improve accessibility in these spaces. How can universal design be best applied to metadata in digital museum catalogs and objects? What kinds of metadata in digital museum collections can potentially increase accessibility? Are museums currently including metadata that increases accessibility for people with disabilities and impairments? These questions were explored using a content-analysis approach applied to textual information collected from forty objects in four digital collections found on the publicly accessible webpages of Canadian institutions of cultural heritage.

Keywords: Metadata, Universal Access, Digital Museums, Universal Design

Virtual museum access has the potential to reduce accessibility barriers of many kinds when it comes to accessing heritage collections. However, as is seen in the world of digital libraries, the digital space can be host to different types of barriers. This study explores some of the intersections between accessibility and metadata in heritage institutions. Heritage institutions are defined in the context of this study as Galleries, Libraries, Archives and Museums, which provide access to shared cultural history and knowledge. Impairments is used to describe a loss of typical physiological, psychological or anatomical function (World Health Organization, 1993). For the purposes of this study impairments is used instead of disability in order to provide a

broader context, as some impaired persons may not consider themselves disabled. For the purposes of this work accessibility is defined narrowly within the context of providing equal access for persons who experience impairments.

Metadata for Accessibility in Digital Museum Spaces

Museums and other heritage institutions are an important part of the public sphere, places of learning and understanding of heritage open to the collective public. Like other places that make up the public sphere, museums present a variety of barriers for people with impairments (King-Wall, 2016; Poria et al, 2009). There is an ethical call to prevent exclusion from cultural tourism, with the current consensus being that museums should be accessible to all (Poria et al, 2009). Greater digital access to museum spaces may alleviate some physical accessibility concerns, allowing greater access for those whose impairments affect their interactions with physical structures and spaces. However digital spaces have their own barriers for people with impairments, especially visual, textual or intellectual impairments.

One way of improving accessibility in the digital space is by using metadata, an approach that has been studied in the field of digital librarianship (Beyene, 2017; Beyene & Godwin, 2018). In digital libraries metadata can increase accessibility by allowing impaired users to locate resources more easily. This role in digital libraries is the inspiration for inquiry into the ways metadata can improve accessibility in broader contexts, including digital heritage collections such as museum websites. Although there is interest in standardizing museum metadata, accessibility is not a current focus in standardizing museum metadata schemas (Fortier & Menard, 2017). This study aims to examine metadata in a digital museum context to understand the ways in which museum metadata can be used to increase accessibility for persons with impairments, with aims to include these considerations in future standardized metadata schemas.

Data Collection and Methodology

The methodology for this research was based in a social sciences approach to content analysis described in Spurgin & Wildemuth (2017). Information was transcribed from forty digital objects taken from four collections in Canadian institutions of cultural heritage. The four collections were the Bruce Peel Special Collections Library: Ronald

B. Madge Entomological Collection, the University of Calgary Nickle Galleries: Rugs and Textiles Collection, the Royal Ontario Museum: Global Africa Collection and the Canadian War Museum. As the Canadian War Museum was not easily categorized into discreet collections, the entire collection was examined. These institutions and objects were purposefully chosen to reflect a variety of objects and metadata considerations.

Coding for this study focused on identifying six variables: description metadata quality, description of colour, indications of outside contributions to description, alt-text coding for images, multiple angles and zoom for images and physical accessibility information. The data was printed to paper and coded by hand.

Results

Description metadata has the most potential for increasing accessibility in digital heritage collections. Twenty-one objects examined included enough description to understand the object, determined by having sufficient description to visualize the object without seeing the image. Seven objects described colour and three included a citation indicating contribution by an outside source.

Metadata indicating physical accessibility was not common among objects examined. All objects examined from the Royal Ontario Museum included information on the location of objects on display, which may improve visiting experiences for physically impaired visitors planning a visit, allowing advanced planning around the locations of ramps, elevators or accessible bathrooms.

In a digital museum or other heritage institution space the object is understood through the image itself. This places special importance on elements of metadata and web design that address accessibility concerns around images. Only the ten objects from the Canadian War Museum were marked up with alt-text coding of the images to allow them to be interpreted by a screen reader. All images examined could be zoomed for easier viewing and eleven objects provided multiple viewing angles.

Textual objects were dealt with inconsistently. Twenty objects examined had associated text. Bruce Peel Special Collections was composed entirely of textual objects which were downloadable in multiple formats and available in audio format.

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Other institutions handled text differently, even within the same collections. The Canadian War Museum provided transcription of text in the metadata for some objects but not for others, creating an inconsistent experience when examining objects such as posters.

Conclusions

Digital museum spaces have some room to implement changes to metadata that would increase accessibility for persons with impairments. While there were several interesting ways metadata was being used among the collections examined, no metadata element was specifically dedicated to accessibility considerations. Special attention should be paid to elements of the metadata schema and html markup that allow use of a screen reader. Images should always include alt-text description in the html markup to allow a screen reader to interpret the image. Description metadata is best used when it describes the object in a way that it could be understood purely by listening to the description. This includes description of imagery and colour which can give contextual or cultural meanings. Text associated with the object should also be included in the metadata so that it may be read by a screen reader. If labour constraints limit time that can be spent creating these metadata elements a possibility might be to include submissions from researchers outside of the heritage institution, as it appears was used in the Nickle Galleries collection. Systems where academic experts exchange detailed metadata descriptions in exchange for research access to the objects may prove beneficial in certain institutions or circumstances. Accessibility for the physically impaired may be improved by including metadata to assist in locating the physical object in relation to accessible resources, and by including zoom functions and multiple angles on images provided for those who are physically unable to access the resources in person. Greater attention to these considerations can potentially improve accessibility for visitors to digital museum collections and other heritage institutions.

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