
Considering Collaboration in *ʔeləw'k'w* — *Belongings*

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Abstract

Bringing multiple interactive surfaces and smaller devices together is possible, but not yet extensively explored in the HCI community generally nor in the context of museum spaces specifically. While this is an exciting area for research, collaboration utilizing interactive surfaces as well as collaboration across multiple devices requires careful consideration when incorporated into the design of some museum installations. In this position paper, I introduce the context for the development and design of *ʔeləw'k'w* — *Belongings*, an interactive tangible tabletop installed in a museum and designed to communicate Indigenous traditional knowledge and cultural values. I discuss some of the specific design decisions made around collaboration among museum visitors, the use of multiple devices, and the calculated decisions to exclude certain aspects collaboration and interaction. This discussion highlights our considerations of both previous design research as well as complex colonial histories.

Author Keywords

Tangible interaction; intangible cultural heritage; digital heritage; Museum of Anthropology; Musqueam Indian Band; čəsnaʔəm.

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Introduction

Bringing multiple interactive surfaces and smaller devices together is possible, but not yet extensively explored in the HCI community generally nor in the context of museum spaces specifically. While this is an exciting area for research, collaboration utilizing interactive surfaces as well as collaboration across multiple devices requires careful consideration when incorporated into the design of some museum installations.

ʔeləw̓k̓w̓ — Belongings is one example of an interactive tangible table in a museum setting. The table was developed by a team of researchers, designers, and curators from Simon Fraser University and the University of British Columbia (UBC) in Vancouver, Canada. Installed in the Museum of Anthropology (MOA) at UBC for the *časnaʔəm, the city before the city* exhibition, this tabletop was designed to communicate the traditional knowledge and cultural values of the Musqueam Indian Band. Visitors use replicas of ancient belongings excavated from *časnaʔəm* and everyday objects in contemporary Musqueam lives to interact with the table and learn stories of the Musqueam community's past and how their culture and knowledge continues today.

In this position paper, I will illustrate why cooperation around interactive surfaces requires careful consideration in certain museum settings through my experience as project manager of *ʔeləw̓k̓w̓ — Belongings*. First, I will introduce the context for the development and design of *ʔeləw̓k̓w̓ — Belongings*. This context is

important in understanding the design decisions made around the way museum visitors would experience collaboration and the inclusion of multiple devices in the installation. I will then discuss some of the specific design decisions made around collaboration among museum visitors, the use of multiple devices, and the calculated decisions to exclude certain approaches to collaboration and interaction. This discussion will highlight the development team's considerations of both previous design research as well as complex colonial histories.

Context

časnaʔəm is an ancient village site of the Musqueam people, located near the mouth of the Fraser River in what is now Vancouver, British Columbia. Archaeological evidence suggests people lived in this location for over three thousand years, and according to Musqueam oral history, their ancestors have lived there from time immemorial [23].

časnaʔəm, the city before the city is a partnership between the Musqueam Indian Band, the Museum of Vancouver, and MOA, along with the University of Waterloo. In this series of three exhibitions, the institutions introduce visitors to *časnaʔəm*, each with a different focus.

ʔeləw̓k̓w̓ — Belongings was part of the MOA exhibition (which ran from January 2015 to January 2016) in which MOA curators Susan Rowley and Jordan Wilson were attempting to challenge the meaning of an archaeology exhibit. Visitors would likely expect to see ancient belongings (commonly referred to as "objects" or "artifacts") supplemented by interpretations from academic experts and scientific views. The curators wanted to show, though, that material culture is not

equivalent to culture; there is much more to Indigenous communities than artifacts. So rather than showing ancient belongings, the MOA exhibit focused on quotes and stories from Musqueam community members, noting that academics and scientists are not the only voices with valuable information to offer.

ʔeləw̓k̓w – *Belongings* was developed by researchers and curators from UBC and SFU, along with Musqueam input and approval by way of the exhibit advisory committee for *čəsnaʔəm, the city before the city*. We designed the interactive tangible tabletop with these curatorial priorities in mind, using twelve replicas of ancient and modern belongings to access these stories around which the exhibition was built, reconnecting tangible and intangible heritage.

To briefly explain the main interaction sequence with the table, each belonging has four categories of information. Visitors place a belonging into an activator ring to start exploring, and each category is accessed through a different set of interactions with the table. When a visitor successfully completes the interactions for each category, information will appear on the table in the form of text, contemporary images, historical documents, and quotes from community members. By completing these interaction sequences, visitors ultimately unlock videos that appear on monitors situated next to the table. These are stories from Musqueam community members about the process of learning, the passing on of traditional knowledge, and their culture.

Given the context of *ʔeləw̓k̓w* — *Belongings*, we had specific considerations to address when making design decisions. Early in the design process, we articulated

nine main goals, including highlighting Musqueam voices, encouraging sharing and conversation among visitors, decolonizing museum spaces. Next I will discuss how these goals influenced decisions made around collaboration among museum visitors, the use of multiple devices, and the calculated decisions to exclude certain aspects of collaboration and interaction.

Collaboration Among Visitors

We were influenced by the work of Antle (who was part of the *ʔeləw̓k̓w* — *Belongings* development team) et al. conducted research on a tabletop application called *Futura*. A multi-player simulation game to raise awareness of the complexities around sustainable development, *Futura* required players to work together, each taking on a role in charge of a specific resource, and the players would receive feedback as to the positive or negative effect their choices were making on the overall environment. *Futura* was successful in encoding both learning and collaboration within the game mechanics and interface design [1]. Antle continued work on another sustainability game called *Youtopia*, conducting a number of studies examining how to design tangible systems to support collaboration and reflection around personal values (e.g. [2, 3, 7]).

Drawing on Antle's previous work, we designed an "activation" tool that was mentioned in the previous section, a ring that was necessary to access digital information on the table. Visitors could handle the belongings and set them down on the table, but they would have to use one of the two activator rings to move beyond that initial stage on information.

We recognize that having only two rings would limit the number of visitors directly interacting with the table at

any given time. This was partially necessary, though, due to the size of the tabletop. With twelve belongings available for visitors, the tool would limit which ones would bring up information of the surface. Limiting one of the necessary tools would encourage a sharing of resources among visitors and could spark discussions. This sharing of resources was also related to the sharing of information either by watching or discussing with others who were using the table, such as how to use the tabletop or what interactions were necessary.

Incorporating Multiple Devices

Giaccardi and Palen examined how different media and technologies could be combined and how these intersections could support interactions among communities, spaces, and artifacts. Multiple interactive technologies can work together to open up new ways for users to experience and think about heritage and cultural knowledge. The ways that users interact with these technologies can influence how they understand the socially produced meanings and values ascribed to artifacts [9]. Indeed, there are a number of examples of collaborations with Indigenous communities on multimodal projects that allow for archiving, storytelling, and interacting with cultural heritage (e.g. [14, 24]).

In designing *ʔeləw̓k̓w̓ — Belongings*, we carefully considered what media to include, as well as what devices. Ultimately we included text and images, with photographs, sketches, historic documents, text quotes, and videos. While we did discuss having our interactive surface recognize and interact with any phone, we eventually decided to use the interactive tangible table with three wall monitors nearby.

The basic interactions with the tabletop were mentioned in the context section. Each time a visitor accessed information about a belonging, they would see a mix of photos (many taken by community members on their smart phones), historical images or documents, and quotes from community members. Lastly, if visitors completed the series of interactions, a video clip of a community member would appear on a monitor next to the table. These varied types of information were included to convey that Musqueam culture is not of the past, that the community, their traditional knowledge, and cultural values still remain today.

External monitors were included to further our goals of highlighting Musqueam voices while encouraging collaboration among visitors working on the table. One monitor showed a series of fish cutting images, helping to draw people into the space and give them basic visual clues as to one of the important Musqueam practices. The other two monitors were paired to each of the activator ring tools. We chose to play videos on the external monitors for a number of reasons. Visitors who were near the exhibit, but not physically interacting, could watch and listen. When multiple groups of visitors were working on the table and one accessed a video, it would not prevent or impede another visitor from their exploration (rather than a video clip appearing on the tabletop surface and “pausing” the table, in effect).

We also discussed the option of allowing visitors to interact with the table using their own smart phones, potentially setting their phones on the table as part of the interactions with the table or creating opportunities for visitors to comment or contribute. Due to tight

deadlines and technical concerns, we decided against having the tabletop recognize visitors' own phones.

As for having visitors leave textual comments, tweets, etc., we did want to encourage discussion among visitors. One of our goals was to encourage discussion around the cultural values visitors were learning about through their interactions with the system and around their reflections on their own values in relationship to Musqueam culture. Yet the exhibition overall focused on highlighting Musqueam voices, so we ultimately decided against this feedback mechanism. I will elaborate on importance of Musqueam voices in the next section.

Reconsidering Collaboration

In some cases, we purposely excluded forms of collaboration, such as the above example of allowing visitors to instantly comment on or update the tabletop exhibit. Certainly the museums encouraged the use of the exhibit hashtag in social media during *čəsnaʔəm, the city before the city*, but there was no sort of instant dialog in the museum space in this interactive tabletop. This was in keeping with our focus on Musqueam voices and is rooted in efforts to decolonize museum practices.

When presenting *ʔeləw̓k̓w — Belongings*, people often make connections to theories of participatory design and co-creation of experience. While we certainly see the relationship, it is important to note the differences and distinctions. Participatory design was developed to address issues with workplace information technology by having designers work directly with those who used the technology in question [4]. Iversen and others later described the need to revitalize the focus on values [15]. Participatory design is now sometimes part of the development process of museum exhibitions, involving

audiences in both the design process [26] and designing for visitors' co-creation of experiences within the exhibitions [16, 25].

ʔeləw̓k̓w — Belongings, rather, is an example of working towards the decolonization of museum exhibitions. The late twentieth century North American museology began working towards building new relationships with First Peoples. In 1992 the Assembly of First Nations and the Canadian Museums Association worked together on the development of the Task Force Report on Museums and First Peoples [12], in an attempt to repair the relationships between Canadian institutions and First Peoples and to move towards more open partnerships.

At the same time, digital imaging, databases, and search technologies were rapidly advancing, allowing for museums and First Nations to implement such open partnerships [21] by together developing new tools for both reassembling dispersed collections and creating new forms of access to Indigenous cultural heritage. Canadian institutions and First Nations were now working as design partners [19, 20].

Along with better access to Indigenous cultural heritage, these new partnerships also worked towards bringing fuller representations of heritage into museum exhibitions [17]. Moving beyond a focus on objects, museums and communities are working together to reconnect the intangible forms of knowledge and traditions with these physical belongings in the museum collections and to share this knowledge with museum visitors (e.g. [10, 11, 13, 18, 24]).

While this idea of collaboration may be viewed as largely positive, some scholars warn that inherent asymmetries of power likely still exist in these contexts. In Clifford's 1997 work *Routes: Travel and Translation in the Late Twentieth Century*, he writes about museums as contact zones, drawing on the idea that a contact zone is "the space of colonial encounters, the space in which peoples geographically and historically separated come into contact with each other and establish ongoing relations" [22]. The conditions in these contact zones often include that of inequality, conflict, and coercion, and Clifford saw this consultation process as that of reworking and revisiting the relationship between the museum and the Indigenous people [6].

Some scholars have also warned against the neocolonial potential in the "museum as contact zone" concept. Boast, though he writes from a supportive stance of collaborations between institutions and Indigenous communities, explores the inherent asymmetry of power in these relationships that is often overlooked [5]. Museums must go beyond consultation and cultural sensitivity and incorporate the actual sharing of authority. Drawing on Geismar, Boast notes that the power still remains with those who have the property and capital and who also have the power to display [8].

These complex issues are very much a part of the history between the Musqueam Indian Band and MOA, and were an important factor for us to consider throughout the design process. Wilson, who is also a member of the Musqueam Indian Band, writes on the power relations in the context of the planning and development of *čəsnaʔəm, the city before the city*:

"To my mind, this approach is a result of the agency and authority of the advisory group members; as curators or 'researchers' we simply respected their leaderships and depth of knowledge. In other words, we did not afford them power as much as they commanded it by refusing to be reduced or undervalued as informants or suppliers of data. Simultaneously, this gathered together approach is also a result of the community steering the overall exhibit development' this process was established to adhere to the Musqueam community protocols, of which listening to Elders is critical. The approach we used—gathering together and listening to Elders—is as much a result of Musqueam asserting its agency as it is the exhibit partners (MOV, MOA, and the University of Waterloo) relinquishing power and decision-making capacities" [27].

Not only does this discussion serve to highlight the importance of Musqueam voices in the exhibit, but also to show why collaboration by museum visitors may not always be appropriate. The MOA exhibit and *ʔeləwíkw — Belongings*, strive to move beyond the model of consultation and cultural sensitivity by shifting the voice of authority back to the Musqueam people.

Conclusion

In this paper I described the context of *ʔeləwíkw — Belongings*, an interactive tangible tabletop designed within a specific context, for an exhibition in a heritage institution and in a relationship working towards repairing a long colonial history. I discuss design decisions made in regards to collaboration utilizing interactive surfaces as well as collaboration across multiple devices. And while this context may be quite specific, it serves as an example of instances in which

seemingly benign desires to foster collaboration among users of an interactive surface may need further consideration and reflection.

Museums continue to develop exhibits and installations incorporating interactive surfaces, multi-touch tables, and tangible interfaces. There are certainly great opportunities both in museum settings and beyond to explore how multiple technologies or devices might be combined and how collaboration could be better supported, though in some instances there may be types of collaboration and methods used to encourage such collaboration that need to be carefully considered.

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