Doing Dis/ordered Mappings: Shapes of Inclusive Spaces in Museums

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Abstract
Since knowledge is the commodity museums produce, then understanding how this knowledge is produced, shaped, borrowed, and translated, and through what forces, is critical to creating inclusive museums. Through studies of three national Canadian museums, we came to an understanding of how the shaping of space, physical access, and access to knowledge is used and produced to create inclusive museums, not as a product but as an ongoing process. Doing dis/ordered mappings, as an alternate approach to understanding inclusion, allowed for an exploration of the material relations among people, spaces, and things, creating new trajectories and cartographic methods to explore inclusion within museums. This article introduces the benefits of the doing of mappings to explore differing embodiments of people, with and without disabilities, to create an alternative way to approach/encounter/create inclusion for all people and things in our public spaces.

Keywords
disabilities, inclusion, embodiment, museums, space

Introducing an Alternative Way of Understanding Space
Our research uses an approach called doing dis/ordered mappings to investigate how museum spaces are shaped, specifically when considering inclusion, where spatial configurations affect and sometimes even dictate issues of accessibility and how knowledge is conveyed. We chose three Canadian national museums to examine how regulations codify these museum spaces; how knowledge is produced, translated, and borrowed by museums to create more inclusive spaces; and how the embodied experiences of those with different abilities (e.g., disability) are/not included in the shaping of museum spaces. It is precisely through a doing of dis/ordered mappings that new understandings around spatiality are created.

As a means to teasing out our approach of doing dis/ordered mappings to understand the various shapes of spaces in museums, we highlighted three national museums in Canada—the Canadian War Museum (CWM), Ottawa, Ontario; Canada’s Sports Hall of Fame (CSHF), Calgary, Alberta, and the Canadian Museum for Human Rights (CMHR), Winnipeg, Manitoba

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We selected these museums to provide comparison and contrast because they are national museums that were built within the space of 10 years and have self-identified as being highly inclusive. For example, the Council of Canadians With Disabilities (2013) indicate that “CMHR [is] to feature the most inclusive design in Canadian history.” These museums demonstrate different ways that spatiality, inclusion, human ability, and human embodiment come together.

The State of Museum Practice

In order to explore the shapes of inclusion in museums, it is important to identify the current state of museum practice in relation to the creation of spatial environments. There are two significant ways in which inclusivity is considered within museums: (1) access to the grounds, building, and facilities within the museum, which follows the concept that people need to move around the museum grounds and get into the building to access the information within and have access to amenities such as food, drink, and toilets; and (2) access to the information and knowledge within the museum, usually in the exhibition spaces, which is related to the narratives chosen for display, the language/s used, the visuals and artifacts, and the modes of communication (live interpreters, video, music, interactive displays, etc.). This article argues that the experience of a museum should not be separated out by the physical space, the exhibitions, artifacts, and programs but understood more holistically. If a visitor cannot access an exhibit, its text panels and artifacts, because of physical obstacles in the path, a set of stairs, a narrow corridor or a wide beam, they do not have access to this knowledge (see Figure 2). In part, what Janes (2009) refers to as “self directed learning based on experience,” a concept that has been identified as paramount to museum going and at the heart of accessible and inclusive museum practice.

To begin, most contemporary authors who study inclusive spaces agree that in recent years there has been a focus on the codification of the production of space, through government legislation that involves the use of regulations and building codes (Boys, 2014; Imrie & Luck, 2014; Rieger & Strickfaden, 2016). For example, Imrie and Luck (2014) discuss the dominance of the positivistic, scientific tradition of design, which places emphasis on the production of technical, objective knowledge and applications. This means that architectural designers use regulations and building codes as a means to mediate the human-spatial experiences of museums when designing access to the grounds, building(s), and facilities within the museum. The resulting
museum spaces are indeed inclusive when it comes to getting into the building: using automatic or push button and wide doors; incorporating ramps; and specially adapting stalls in toileting spaces to accommodate various assistive technologies such as crutches, walkers, and wheelchairs. According to Russell-Chimirri (2013; Nickel Arts Museum, Canada), when museums consider accessibility, the extent of their “awareness of the needs of disabled people has been primarily limited to facilitating ease of access to the museum building, installing automatic doors and providing for the basic comforts of patrons in wheelchairs through accessible washroom facilities” (p. 170). The creation and understanding of inclusive museum spaces is then primarily concerned with increasing access to entry and services for those in wheelchairs, which is a rather limited way of looking at access (Rieger, 2016). Rieger and Strickfaden (2016) further argue that the “embodied experiences of people with disabilities, in relation to objects and spatial environments, be recognized as specialised knowledge and that this knowledge goes beyond generalising the experiences of disability through codes/guidelines” (p. 1).

When it comes to access to the information and knowledge within museum spaces, museums are considered trusted and respected sites for the conveyance of knowledge (Ott, 2013). If access is limited to able-bodied visitors, then the access to this important knowledge is exclusionary. Janes (2009) contends that museums are recording material evidence of societal situations and values that are meant to provoke people to understand their past, present, and futures in relation to diversity:

> The record of material diversity contained in museums may have a value not unlike biodiversity, as we seek adaptive solutions in an increasingly brittle world. Collections will be the key to examining the relevance of this material diversity in contemporary times, and will distinguish museums as the only social institutions with this perspective and the necessary resources. (p. 179)

This material diversity can potentially be expanded to include the diversity of museum visitors. If access to this knowledge is only made available to a limited group because of spatial access issues, then the museum risks losing its relevance and power within society. Consequently, there is an opportunity for museum practitioners to consider inclusivity more complexly.

**Doing Dis/ordered Mappings**

In line with considering inclusivity more complexly within museums, the doing of dis/ordered mappings was developed as an approach to explore museums (Rieger & Strickfaden, 2016). The doing of dis/ordered mappings is a means to exploring and understanding museum spatiality more holistically; it teases out inclusion and is linked to human ability and embodiment. Doing
dis/ordered mappings moves beyond cartographies and cartography because it goes beyond fixing lines onto a map, but goes on to explore the material and embodied relations in museums (Rieger & Strickfaden, 2016). While mapmaking is a process toward making a product, doing mappings is a process of investigating, exploring, and creating multiple and complex mappings, not maps. Therefore, dis/ordered mappings is also about collecting information about spatial environments and generating a knowing that moves from the normative into alternative ways of knowing. The doing of dis/ordered mappings is approached through various entangled things such as following lines and creating mappings.

**Following Lines**

Lines are naturally a part of mapping and maps. For instance, lines are made up of trajectories that relate to spatiality; lines can relate to embodiment through the visual, haptic, and/or mobility (Ingold, 2007). Our mappings are influenced by Deleuze and Guattari’s (2002) notion of “mapping,” which informs the mapping of the research encounters, the articulation of lines, the exploration of relations between things, and discerns emergent patterns (McLeod, 2014). A Deleuze-Guattarrian cartographic methodology constitutes a decisive onto-epistemological shift where researcher, participants, things, and spaces become coproducers of reality together in the production of research and knowing (Lenz Taguchi, 2012; Lenz Taguchi & Palmer, 2014).

In the case of following lines within our three museums, mappings are about the process of doing and not about the process of producing. Moreover, the idea of following lines is about flows and movements that move beyond the form making of hylomorphic models. For instance, a trajectory that a person or people take to get from one space to another (e.g., gallery to toilet) can be followed as a line that is perceived differently by different people and may vary depending on factors such as other people, obstacles, and more. Other lines include sight lines, where people can view from above to below, for example (see Figure 3). Lines can be defined within a space or be perceived by individual people. Following lines is relative to bodies, movements, tactility, viewing, and more. In other words, following a line is about doing actions through the body and is an activity of exploration and reflection.
Creating Mappings

The process of doing dis/ordered mappings is to explore lines, encounters, and the relations of people, spaces, and things in museums. Along with defined and perceived lines that relate to trajectories and movements, mappings are relative to lines particularly when considering how lines make up a kind of mappings of spaces. Our exploration of lines was created through a plethora of encounters, such as reading, digging, resting, wheeling, and swirling (see Figure 4). These differing lines allow for an exploration along rhizomatic paths that represent encounters with the material world and are informed by closeness, familiarity, about body belonging, and about extremely rich and polysemic encounters involving pure sensuality (Olsen, 2006).

Our three museum case studies were a means to engage in a doing of mappings to better understand how the embodied experiences of those with different abilities were included in museum environments. These mappings draw up the interactions and entanglements through movement, which is to understanding embodied and sensorial encounters in creating inclusive space. In drawing up our lines and mappings, we moved beyond flat, two-dimensional diagrams, models, tables, and sketches and instead created multiple mappings, including ones that are three-dimensional and tactile, as a way to understand differing lines, such as movement(s), in relation to embodiment(s) (see Figure 5).

The mappings, which included two- and three-dimensional lines, were created within our broader research project; in other words, they were not drawn out in advance. They were a result of rigorous research about spatiality that differs significantly from the tracing and retracing of familiar forms that are typically part of the architectural design process. To reiterate in an alternative way, our research is a doing of mappings with no set paths that flow like “a rhizome and is not amenable to any structural or generative model” (Deleuze & Parnet, 1987, p. 12). Deleuze and Parnet (1987) further state that a rhizome is “a map and not a tracing” (p. 12). Moreover, Deleuze and Guattari (2002) submit that “the map is open and connectable in all of its dimensions; it is detachable, reversible, susceptible to constant modification. It can be torn, reversed, adapted, to any kind of mounting, reworked by an individual, group, or social formation” (p. 12). This characterization of doing dis/ordered mappings, creating mappings and following lines, is done to better understand the complexity of these relational encounters and inclusivity in the museum.
Dis/ordered Mappings as Data Collection and Analysis

The doing of dis/ordered mappings is akin to a type of multiple-method, reflexive data collection process. In our research, dis/ordered mappings were created for the interior and exterior spatial design of all three museums. The dis/ordered mappings involved reflexive journaling, making field notes, video recording, interviewing, walk-along interviews, audio recording (the soundscapes in the museum, audio walks, and the interviews), drawing (paths, maps, way finding, and other elements of the museum environment), and photographing. Our approach to collecting data were multipronged, it focused on engaging in embodied and multisensorial techniques that supported the development of each case study through the collection of a rich variety of data about the spatial environments in each museum. The construction of each mapping is iterative and driven by the nature of the museum, which means they take form at different rates depending on overall complexity (e.g., size and nature of spaces, participants involved, available documentation about the spaces).

Our resulting data types (see Table 1) come together and create mappings of the embodied encounters of multiple researchers and participants in each case and thus inform the findings of this research.

Dis/ordered mappings is a different approach than a methodological process with stages and phases. It allows for an understanding of the data as an entanglement of stories and lines that reinforce dis/ordered, multisensorial encounters. This reflexive practice, which is overlain with stories, lines, mappings, embodied encounters, and multisensorial experiences from multiple perspectives, is a messy form of data analysis (Law, 2003; Rieger, 2016) This messy data analysis, especially the layered mappings resulting in two- and three-dimensional lines, brought knowledge about the shapes of inclusive spaces to the fore.

In sum, dis/ordered mappings is an intense and messy data collection/analysis approach that is layered and diverse in nature, especially because it involved three separate case studies. Furthermore, it is in/through our own process of making and doing, writing and reading, playing...
and messing around that we realized that we did not want to communicate a final product, model, floor plans, or final results, but to share a process—the ongoing process of this research with all of its collaborators and coconspirators (Rieger, 2016).

**Shapes of Inclusive Museum Spaces**

Through our doing of dis/ordered mappings of these three museums, we learned that the shape(s) of inclusive museum spaces comes in various forms. The first shape, unsurprisingly, is relative to human movement; but what is surprising is that none of our architects, designers, or museum professionals discussed the museum space/s in terms of movement. This shape of inclusive museum spaces came from our reflexive, in-depth exploration of the interior and exterior spaces of each museum, first individually and then with persons with disabilities. In contrast, the second shape of museums comes from dialogues with architects, designers, and museum professionals, who often characterized museum spaces as products. Third, inclusive museum spaces, in particular, seem to be typically shaped by documents that represent how the spaces are conceived and used by people. Documents include materials legislated by governments, such as building codes, and museum guidelines that are not legislated, but are viewed as significant information that is useful toward creating inclusive spaces. The fourth shape of museum spaces is the use of technological interventions that are thought to enhance visitors’ experiences. These four shapes of inclusive museum spaces relate to how museum spaces shape experiences, the perception of museum space through the eyes of people involved in the development or creation of general spaces, and how inclusive spaces come to be shaped.

**Moving Shapes**

Movement is inherent to human experience. Whether a person is ambulatory through their legs or through assistive technologies, one of the key aspects of being human is to be mobile and to get places. Thus, movement would be expected to be a core aspect of considering museum spaces. Indeed, the spaces within museums are planned to connect, coincide, and evolve through movement, yet the reality of how this works, particularly for someone who is not in peak ambulatory condition, was not a discussion that came into our conversations with

| Data Type                          | CWM Case Study | CMHR Case Study | CSHF Pilot Study | Total |
|------------------------------------|----------------|-----------------|-----------------|-------|
| Photographs                        | 1,875          | 1,206           | 650             | 3,731 |
| Field notes (pages)                | 128            | 102             | 55              | 285   |
| Interview notes (pages)            | 35             | 64              | 10              | 79    |
| Interview transcripts (pages)      | 148            | 299             | 21 (one out of three interviews) 468 |
| Interview audio recordings (min)   | 788            | 670             | 330             | 1,788 |
| Documents (pages)                  | 350            | 410             | 280             | 1,040 |
| Soundscape (min)                   | 52             | 18              | 10              | 80    |
| Audio walk recordings (min)        | 36             | 45              | 20              | 101   |
| Videos (min)                       | 20             | 15              | 10              | 45    |
| Drawings and mappings              | 12             | 10              | 5               | 27    |
| Three-dimensional fiber mappings   | 1              | 1               | 0               | 2     |
| Word mappings                      | 7              | 7               | 0               | 14    |

Note. CWM = Canadian War Museum; CSHF = Canada’s Sports Hall of Fame; CMHR = Canadian Museum for Human Rights.
architects, designers, or museum professionals. Instead, they seemed to view the museum spaces as relatively fixed, with specific trajectories and destination points. Even when it came to museum employees, the concept of space was not defined through considering movement but through considering specific tasks such as removing or placing an artifact in the vaults or helping people at the ticket/information desks. In contrast, in our own explorations of the museums, moving bodies within the spaces came to the fore as the most significant shape of inclusive museum spaces.

Our first impressions of each museum in terms of movement were that they were vast and extremely complicated. Using the provided wayfinding maps at each museum was somewhat useful in terms of discovering the informational content that could be most relevant or interesting; however, these static maps merely provide destination points that hint at trajectories. Furthermore, the distances from one location to another are not defined on the way-finding maps, and the maps are not necessarily created to scale. As such, movement within the museums are left up to discovery on foot or through wheeling (see Figure 6).

Each museum had mobility devices that could be signed out for use. For example, at the CWM, electric scooters and wheelchairs were available. In line with this, as researchers, we decided to experience each museum on foot and then also through wheeling to better understand the embodied experiences of people with differing abilities. In our walking experiences of each museum, we discovered that the sheer distance to travel to experience each space was exceptionally challenging, particularly with the CWM and CMHR. The CWM was all on ground level and did not use any stairs (with exception to some spaces designed for employees). Additionally, the CWM’s floors were constructed entirely from concrete, which made walking for more than 1 hour tiring. With CMHR, there was a great deal of elevation to contend with, literally kilometers of ramps that made walking/wheeling upward tiring and walking/wheeling downward challenging, particularly
when wheeling, because it was easy to gain unnecessary speed that caused a fear of colliding with other people. Along with creating a clearer understanding of movement, our wheeling lines supported a clearer understanding of the embodied experiences of those with disabilities. When we took a manual wheelchair and a scooter to explore the CWM, this allowed us to see the displays and informational text from a different vantage point. It was clear that wheeling was a very different embodied experience than walking.

Knowing through wheeling allows for a differing perspective from different angles. One of our participants explained how the glass display cases, which were lowered to be more accessible to a variety of users, is rendered inaccessible by the design and integration of the lighting in the case (see Figure 7). The height of the lighting in these cases is at a level that is fine for a standing visitor, but for the visitors who are in wheelchairs or children or people of shorter stature, the bright display lighting shines directly into their eyes, rendering the content inaccessible. In other words, these small details that make an accessible design inaccessible need to be understood, and this can only happen when they are designed and then evaluated from a variety of differing perspectives and viewpoints.

The second way that we explored the shape of movement was through analyzing the interior and exterior spaces of each museum accompanied by persons with disabilities. The museums were explored with people with mobility challenges and people who are blind or have visual impairments. These walk-along interviews were interactive engagements that were highly informative. To begin, the pace of movement was slowed down, which again shifted the perspective of engaging with the spaces within the museum. The effect of slowing down heightened attention to smaller details of the environments such as the acoustical and material characteristics of each space. Whether a carpet was present or not and whether the lighting was cool or warm and caused glare became highly relevant to the spatial experiences. We also discovered that the vast distances to cover in each museum simply was not possible when a person is not in peak ambulatory condition. Furthermore, way finding to achieve mobility was also challenging for people with disabilities, particularly when it involved people with visual impairments.

**Shaped as a Product**

Through conversations with architects, designers, and museum professionals, we learned that museum spaces are conceived in their minds as products. What was significant is that when our
participants referred to “products,” they were sometimes referencing the entire building, the technologies that mediated people’s experiences within the museum, and even building codes. Their ambiguous use of the word and concept *product* pointed toward an objectifying of space and a characterizing of space as consumable, thus distancing the architects, designers, and museum professionals from museum visitors.

When discussing the process of creating an inclusive museum with our interviewees, it seemed as though they were validating a “product” already created without any reflection on how it could be improved in the future. This focus on inclusion and access in the museum comes from a fixed position that does not allow for an actual *doing* of inclusion. If the focus of creating an inclusive museum is consumed with producing a product, then it is important to reflect on the *process* of producing that product and how the product will then remain agile and adaptable to changes, fluctuations, and movements.

What is particularly interesting about our interviewees discussing spaces within the museum as products is that their discussion of adopting and/or creating a product was based on unconscious assumptions. These assumptions included the articulation that a product is a destination, something fixed and not fluid. For example, a museum director at the CMHR said, “So at the end, you’re having an advisory council where we would engage the audience that was very critical of us. And we engaged them to help us make informed decisions, so we could develop a more informed inclusive product.” Additionally, when discussing the “products” of accessibility, there seemed to be an implicit understanding that once products were in place, knowledge was in place, and they were of the highest standard and did not require any remediation to make them better. Here, a staff member at the CMHR comments, “Luckily, I’m in a place where accessibility is front-lined. So I’m not having to educate anybody. They already know. They are already there.” This points to an understanding that knowledge around inclusion and access is often thought of as something to achieve.

**Shaped by Documents**

In each of our case studies, more inclusive museum spaces were shaped by documents that represent how the spaces are conceived and used by people. A variety of documents—including legislative building code (e.g., National Building Code of Canada, 2015) and suggested guidelines, such as *Access Design Standards* (Calgary, 2016), *Barrier-Free Design Guide* (Safety Codes Council, 2008), *What Is Universal Design? The 7 Principles* (Mace, 1997), and the *Smithsonian Guidelines for Accessible Exhibition Design* (Smithsonian Accessibility Program, 2012)—have been developed to represent the embodied experiences of persons with various abilities. This is the typical way in which knowledge about the embodied experiences of people with disabilities is represented; however, these do not accurately translate the multisensorial and complex human experiences of spatiality (Rieger, Herssens, & Strickfaden, 2018; Rieger & Strickfaden, 2016).

Museum spaces shaped by documents is a common denominator across each of the mappings of our museum case studies. Along with this, there was an assumption that using documents toward museum spaces is normal and fulfils accessibility requirements. A senior interpretive planner at the CWM shares,

So at the . . . museum, there were standards developed for accessibility. . . . I think they were probably based in large part on the Smithsonian guidelines. You can’t exactly call them the gold standard, but they’re what’s most readily available and widely accessible.

This statement highlights that codes/guidelines and standards are understood as useful, important information and that they are also readily borrowed from other contexts without really knowing how and if they apply.
An architect who worked on the CMHR comments about the limitations of codes/guidelines:

Building codes are great for building types. If you’ve got a shopping center, a code tells you what you need to do; if you’ve got a Walmart store, it tells you what you need to do; or for office buildings, it tells you what you need to do. But where there is a sort of design ambition that goes beyond it or a building program that relates to something in the atypical type, the codes can only take you so far.

While touring the CMHR and CWM, the architects and project managers involved in the construction of the museums commonly pointed to features related to disability (e.g., doors with automatic push buttons, separate toileting stalls for people with disabilities, ramps to gain access to certain spaces) that met codes/guidelines to highlight how their museums were inclusive (Rieger, 2016).

A project manager comments on how the CWM was made accessible from the use of codes:

We have the ramp, which meets accessibility codes because we use the building code as a guide. . . . The building code refers to universal accessibility standards and . . . they’re referred to, and we go to the standards to find out how to do washrooms and how to do handrails and how to do all this stuff.

In contrast, a designer found that the use of codes/guidelines, books, and documents to inform access and inclusion can only go so far because they are geographically specific (municipal, national). Using these codes in different countries involve a great deal of misunderstanding as they are subject to interpretation. He explains,

The exhibition designers were constantly quoting ADA [the American Disability Act], and I was constantly criticizing them. . . . And so, sometimes, with the Americans, I have to say, okay, here you’ve got to walk in people’s shoes. I will give you a real simple example: I was working on a community college and trying to explain to the architects what ASL interpreting was like. If you had an ASL interpreter in a classroom, what does that mean? And they were just not getting it. So I set up a meeting where I brought a very well respected member of the deaf community with me, who brought an ASL interpreter, and we spent 4 hours in the architect’s office reviewing drawings, and at the end of it, they got it.

This designer clearly advocates for considering the embodied experiences of people with disabilities as a means to illustrating some of the pertinent issues around spatiality (Rieger & Strickfaden, 2016).

A senior architect at the CMHR notes that codes/guidelines are limiting and therefore other sources of knowledge have to be pursued:

In fact, there are things in the building that at the time building code would have suggested to do something else. I believe the code at the time required the ramp to have railings every 3 or 4 feet, or something like that, so that a person in a wheelchair could actually pull themselves up a ramp. So we engaged the Council of Canadians With Disabilities and consulted with them on how to approach it.

Indeed, legislated codes are a very limiting simplification of how spaces are experienced and used by people. It is interesting that many of our interviewees discuss the limitations of documents used to represent embodied experiences and even, in some cases, bring in individuals as consultants to augment the rather limited representation of embodied experiences embedded in the documents.
Technological Interventions as Shapes

This fourth shape of creating more inclusive museum spaces is the use of technological interventions used to enhance visitors’ experiences. For the purpose of this article, technologies refer to traditional museum technologies such as tactile maps, visual displays, and audio-driven interpretive materials, and more complex, interactive technologies such as interactive touch screens and mechanical devices. The CSHF had really great opportunities for engagement and learning through technology, and many of the exhibits have integrated the technology so that it is embodied and interactive, like trying out a sport wheelchair in an Olympic race or ski jumping.

The CMHR has very few hands-on or embodied exhibits other than through touch screens, which is largely due to the fact that the museum focuses on the concept of “human rights” and is not artifact driven. A museum director at the CMHR responds to how the tactile maps are used in conjunction with the audio tours: “So those worked really well in conjunction with the tactile map because it’s going to describe all the main elements within the gallery, and then you could actually feel what those elements are in situ.” Our wandering interview with a participant who is visually impaired explored a different kind of encounter with these tactile maps. He explained that the raised lines on the map were created from a visual-centered perspective, which meant that they were not legible through touch because the modal shift from vision to touch had not been taken into account. A design professional at the CMHR responded to a question about how tactility works in the museum: “I’d say it works very functionally. At this point, like there are tactile elements within the museum, but they’re more functional than experiential.” It is clear that tactile experiences in museums are thought to be a solution to engage persons with visual impairments in the museum; however, the knowledge to produce meaningful tactile experiences goes beyond the expertise of most museum professionals (Candlin, 2003, 2006; Strickfaden & Vildieu, 2011, 2014).

Following the lines of mediated knowing and how technology entangles with the embodied experiences of those with disabilities, a designer comments, “Well, my argument always is that technology in actual practice never solves the barrier. It never removes the barrier; it transfers the barrier.” The ways that technology has been crafted to create redundancies and provide choices to visitors through multiple systems and layers often creates more confusion and makes the technology that was designed for inclusion less inclusive. A museum staff member at the CMHR describes a weakness of the CMHR as “the digital exhibits, which are not overly intuitive, and sometimes confusing for how to navigate.” It took a lot of “experts” to design these technologies and to create prototypes, but the systems and technologies have not been tested through the actual embodied experiences of people with differing abilities.

The largest exhibition space at the CMHR devoted to disability is the “Out From Under” exhibit (Frazee, Church, & Panitch, 2008). A curatorial staff member comments on this exhibit,

> Visitors are able to access the story behind each of the 13 artifacts by accessing a flipbook located at the front of the exhibit. When the page is turned to a specific theme/artifact in the exhibit, it is lit, so it becomes highlighted. The flipbook, however, is not fully accessible.

If, indeed, formal prototyping and testing sessions took place at various phases of the design and these included users with diverse abilities, then one would expect that the largest exhibition about disability at the CMHR and one of the only exhibitions on disability at a national museum in Canada would be accessible.

Technological interventions used to enhance visitors’ experiences are often created to enhance the experiences of persons with disabilities, yet they are partially and sometimes never informed by the embodied experiences of those with disabilities. This means that this fourth shape of
museums returns to the issue of trying to create an inclusive “product,” a product of technology, rather than shaping inclusive museums through an ongoing process.

**Enacting**

In following these shapes of museums, we moved closer to understanding that inclusion in museums is a complicated process, especially when considering people with alternative ways of experiencing spatial environments through differing embodiments (Rieger & Strickfaden, 2018). Inclusion in the museum is not easily produced, analyzed, or mapped. It is neither something that can be reproduced, borrowed, or done by an expert nor can it be prescribed through models or guidelines. It cannot be done through the use of best practices or through prototyping and participatory user groups. Creating inclusive museum spaces is about taking risks, becoming undone, admitting the limitations of people’s limited embodied experiences, and involving a breadth of human experiences (not just our own) to develop better ways of doing inclusion as an ongoing enactment (Moser, 2000). Reflecting and revisiting, asking and pausing, then being critical of prevailing knowledge is imperative. Furthermore, falling, tripping, and making mistakes is also part of better understanding inclusion. This embodied and ongoing process compels a type of acting and enacting.

Shaping of knowledge in the museum does not mean that there has to be a knowing or a focus only on attaining the knowledge necessary to create a knowing; it means that knowing must be seen as a considered but unconditional openness and therefore entangled with an unknowingness (Loacker & Muhr, 2009). A designer who worked on the CMHR and is considered “an expert on accessibility” by others expands,

> I learned early in my career to never being afraid to go up and say, tell me about this, explain this to me because I don’t know. Tell me what this is about. And if I’ve made an error, I am not afraid of picking up the phone and saying, look, I am sorry that I’ve done this. And so people know that I am going to be honest. But still, I’ve had to work really hard to gaining that respect and that willingness to listen.

Inclusion is an ongoing enacting, not a destination with an end point that can be attained, produced, and achieved.

**Shaping, Shifting, and Sharing**

The four shapes of more inclusive spaces in our three museum case studies provide a unique perspective on museum spaces. The four shapes—(1) movement within museum spaces, (2) the perception of spaces within museums as products, (3) documents as drivers of spatial design, and (4) technology as solutions to inclusion—tell a story about contemporary museum spaces. These shapes reveal that museum spaces are largely defined by characteristics that move away from actual embodied experiences, the very thing that has the potential to enable more inclusivity. Furthermore, the four shapes of inclusive spaces point to the need to shift the way that inclusivity is conceived of within architectural spaces in general.

The culture of creating spatiality in our diverse society has become implicitly conjoined with legislative protocols established by governments that support potential litigation and play to the illusion of creating inclusion but do not necessarily create real inclusion. Along with this, the common response to creating inclusivity seems to be centered on creating technological interventions that mediate human experiences. Sadly, these technological interventions are often under-researched and lack clarity around what they mediate and how successful this mediation is accomplished. Social and cultural inclusion is about achieving full community engagement and
equal access to resources, and not just about allowing people to get through the doors, to access the café and shop, and to use the toilet. All three of these museums overlooked access to fully embodied experiences that provide multisensorial stimulation, including acoustical, olfactorial, temperature, textual, visual, and tactile experiences. We recognize that our study is not necessarily generalizable; however, when considering architectural spaces other than museums (particularly public spaces such as libraries, schools, hospitals, care homes), we acknowledge the significance of the sensorial turn toward spatial design (e.g., Pallasmaa, 2009, 2012) but would hope this can be extended toward a deeper production of different kinds of knowledge around spatiality.

Our discussion of three national museums through lines, mappings, and embodiments becomes a knowing and an unknowing of the embodied experiences of those with disabilities and a doing and undoing of inclusion in the museum environment. Our case studies demonstrate that the meanings, intentions, and executions of museums continue to exclude particularized embodied experiences and differing ways of knowing. Museums must move away from the understanding of inclusion as a product toward a doing of inclusion as an ongoing process or enacting. If inclusion is thought of as something that is not “out there” to be attained or achieved but rather as something that is challenging, complex, and at times unpredictable, then new modes of engagement and new processes can be created around inclusion. Trying to “fix” inclusion in order to achieve inclusion is an impossible task.

Conclusions

There are no simple conclusions, concise summaries, or easy answers, nor do we advocate seeking these. However, through our doing of dis/ordered mappings, it is our hope that other ways of approaching and framing are opening up to newness to: new knowledge processes, new engagements in order to come across new encounters, play with new things (and get messy), and follow (and touch and feel) things not yet enacted (Rieger, 2016).

Our broader research, and the work reported in this article, is not about defining a problem “out there” and then analyzing the negotiations of the phenomena through entanglement; rather, it’s about exploring alternative ways of drawing up and doing research on spatiality. We started to question alternative ways of examining spatiality by moving beyond language and traditional ways of doing research. Rather than using an “ordered” tool or model, each doing of dis/ordered mappings adapts to the particular study, the collaborators and the materials.

Our research concludes that spatiality in museums, and specifically inclusive museum spaces, requires further and deeper exploration in relation to the museum-going experiences. These museum-going experiences need to be acknowledged as creating limited and limiting experiences through the spatial layouts, paths and trajectories, way finding, and general access. Most studies on museums and their layouts have separated out the knowledge produced through the spaces from the knowledge produced through the artifacts/exhibitions. Our research argues that spatiality presses and pushes on the visitor and either creates or denies access to the knowledge and experience gained from exhibitions and artifacts. Furthermore, access to the grounds and spaces inside and outside museums (physical) are entangled with access to the information represented and presented in museums (intellectual). That is, creating a more inclusive museum is not limited to adding ramps, wider pathways, or studying the space syntax (Hillier & Tzortzi, 2006), it is about creating inclusive experiences and understanding the entanglement of differing knowledge productions (Hetherington, 2000; 2003) and about how these push and press on one another to create more or less inclusive experiences in the museum. Since knowledge is the commodity museums produce (Bennet, 2017), then understanding how this knowledge is produced, shaped, borrowed, and translated is critical to creating more inclusive museums.
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