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Characterization of Disability within Design Process

by

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ABSTRACT

It is often assumed during product design that the product will be used by individuals who have two working eyes, ears, legs, feet, hands in addition to the ability to mentally process information in a very coherent way. Such assumptions during the design process negate the experiences of people with disabilities who have developed various useful strategies to cope with barriers and hazards they encounter everyday. The experiences and expertise of people with disabilities are very important in evaluating existing products and places as well as news designs in developments. One such instance where designers appreciated the experiences and opinions of people with disabilities and included them in the design process is the renovation of the Premier's Council (PC) office space. Retrospective case study of the design process for PC office renovation is highlighted in this study to understand how disability is characterized in different ways and then designed into a physical space. The Premier's Council is located in Edmonton, Alberta and was designed by architect Ron Wickman. The Council office embodies disability in overt ways through physical cues that tell a story of different kinds of disability. More interesting, however, is how the designer and design team got to the finished product through their understanding and characterization of the concept of disability. Although human actors (architect, clients, etc.) drove the process, it was the non-human actors (e.g., guidelines, policies and other objects) that became highly significant. The results of the study unravel an immensely complex heterogeneous network of human and non-human actors that contributes towards understanding how disability is situated in design process.

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When I first started this Master's it began without having any specific goal in mind, without any specific destination and any expectation. After three years of this Master's I have come to realize I also didn't expect the adventurous journey I would go through while completing this degree. Upon my graduation Bachelors of Science with a major in Biology, I came to the Department of Human Ecology in 2010, hoping to learn about Fashion and Design. Throughout the semesters my interests' changed and constant challenge of graduate work led me to believe this is not something I am capable of. I was told that once I find my passion it will not be so hard and my passion was nowhere near for me to find. If it wasn't for the people, I am mentioning here, I would have never been able to complete this journey let alone find my passion.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1 INTRODUCTION

Introduction

The research in this thesis involves a retrospective study of the design process of the renovation of Premier's Council (PC) office space that is located in the heart of downtown Edmonton. The council was established in 1988 in order to improve the lives of persons with disabilities. It aims to do so by addressing disability related issues and communicating them to the government. The office renovation took place between the fall of 2004 and the spring of 2005. The PC renovation project was chosen as a retrospective case study for the following reasons: 1) the design was led by an architect who has won many awards for/with designing for disability[1]; 2) the office space is considered a showcase for features that work across disabilities; and 3) it is a human-centred design project that was created collaboratively with the designers, client and the end-users who are the employees within the space. The finished office space has design details and architectural features that make it a model for barrier-free design with the aim at initiating more designs like it within the nation. In addition, the space is an example of how disability is understood through human bodies, socio-cultural values and also through human and non-human actors interconnected with a complex heterogeneous network.

[1] Throughout the course of this thesis the word 'disability' is used as a general term without any specification to or definitions of any particular kind (e.g. mobility impairments, vision loss, hard of hearing etcetera) in order to avoid using any particular model of disability (e.g. religious, charity, medical and social). This thesis acknowledges that experiences of disability is unique to each person with disability and those experiences also impact them differently.

The foundation for the research herein is positioned within human ecology and material culture, whereas the theoretical framework is actor network theory to better understand the interconnected network of disability in a more holistic way.

Setting the stage

Designing is an activity where designers use their knowledge, personal experiences, creativity, and powers of thought in order to solve a given problem (Dorst, 2003). The iterative process of solving a design problem from inception to production, which includes asking many questions, is known as the design process. Design researchers have studied design process for quite some time and have learnt that design happens in iterative stages. That is, designers first try to understand the given problem and then generate possible solutions. Further, they explore and evaluate the consequences of each possible solution in order to choose the best one. This process of "pose-search-generate-test" can be summarized as design process in design practice (ibid).

During the design process designers often carry out researches on other similar target objects and the people they are creating the object for, either separately or fully integrated. On the most part, designers seek a clear process in order to better understand the needs, wants and expectations of people (or end-users) and embed these into the target object. Involving humans during any phase of the design process is considered to be a methodology known as human-centred design. Although it is starting to become a common practice for designers to involve end-users during the design process, designers often centralize their own experiences while

designing (Morrow, 2000). Such self-centralization can deprive the designers of the necessary expertise and experiences of both designers and people with disabilities when it comes to designing for disability. People with disabilities are at times excluded from the design process due to challenges such as appropriate transportation, lack of monetary funding and scarcity of time (Kroll & Morris, 2009).

For the design of the Premier's Council office space, designers involved all the employees of the Premier's Council including those with disabilities in order to better understand their needs, wants, expectations and requirements within an office space. Such integration and collaboration created an interesting network of perceptions, characterizations and subsequent useable information about disability. For the purpose of the research herein, this network includes acknowledging and looking into human and non-human actors. The thesis herein explores that multifaceted network through the theoretical framework of actor network theory. Actor network theory is a theory that acknowledges the network or ecology of a particular environment without any differentiation between human and non-human actors (Law, 1992) in terms of agency[2]. Actor network theory suggests that human beings form social networks by not only interacting with other human actors only but by interacting with endless other non-human actors as well (ibid).

The human actors in the Premier's Council retrospective case study include the designers (architect and interior designer), the client (project manager from Alberta Infrastructure), the employees present during the

[2] Agency is defined as "the ability of the actors to operate independently of the determining constraints of social structure" (Calhoun, 2002).

design process (expert/users, social worker, Assistant to the Deputy Minister) and also the employees who came into the space and experienced it after it was completed. Non-human actors, revealed during data collection included the codes, guidelines, standards, available materials, design samples, timeline and budget. In order to better understand the interactions between human and non-human actors, human ecology and material culture are used as a foundation. The human ecology perspective provides a valuable way to understand how individuals interact within their environment and the material culture perspective acknowledges that culture is embedded in non-human things. Together these perspectives aid in providing an exploration into and subsequent understanding of the intricate network of disability resulting in a characterization of disability within the design process.

Statement of Problem & Objectives

The purpose of the research herein is to explore how disability is characterized within design process through human and non-human actors. A multiple method qualitative approach in the form of a retrospective case study is taken including observations, questionnaires and informal interviews with participants. In addition sketches and drawings are gathered to explore under-investigated details about the design process involving people with disabilities. A better understanding of the design process where disability is a prominent factor allows designers to be more aware and open towards developing human-centred empathic design rather than more self-centralized design (Strickfaden & Devlieger, 2011). Such human-centred, empathic methodology help fulfil the needs and requirements of the 15% of the population who are often neglected during design process.

The objectives of this research are naturally linked to the statement of the problem. These are as follows:

1) To better understand a network within a specific design process including the breadth of that network of human and non-human actors.
2) To explore the agency of the actors in the network including which ones are most influential.
3) To describe and analyze how disability is perceived and characterized by people within design process.
4) To describe and analyze how disability is characterized through non-human actors.
5) To highlight innovative design features inside the Premier's Council office renovation as a result of designing for and with disability.

The research questions and objectives of the research herein are explored with qualitative methodology that results in rich data that illustrates the breadth of the design process and the depth of societal views on disability.

Justification

The research herein contributes to the existing literature on design process and disability within design process and begins to decrease the gap in knowledge in the area of disability within design process. This thesis examines and describes both disability and the design process in a more holistic way by incorporating material culture, human ecology and actor network theory. The research also explores and builds on the idea of how human-centred design when creating office spaces can produce more

efficiency and productivity by removing barriers from the space and enabling employees to do their duties with limited inconvenience. It can also give a sense of empowerment and ownership to people (those with and without disabilities) involved in the process.

Significance

The work herein holds significance for a number of reasons. To begin, it sheds light towards better understanding societal viewpoints of disability through the design of a space that was meant to be a showcase for accessible design. By exploring the agency of human and non-human actors within the design process including how agency interacts and has fluidity, more insights are gained into the complex network during designing. These perspectives and approaches in researching design process are beneficial to designers and design educators since it aids towards understanding how designing for and with disability can be improved. In addition, the research described in this thesis also begins to develop a greater awareness on, about and around disability and characterization of disability within design process. Finally, this work is also significant to people who have disabilities because it tells a story of empowerment where people are seen as user/experts[3] and are able to contribute to the design process.

Thesis Outline & Summary

This thesis consists of seven chapters that describe, explore and analyze the under investigated details about how disability is characterized within design process. The chapters flow from a background of significant

[3] The term user/expert was coined by Ostroff (1997) to describe those individuals belonging to marginalized group including people with disabilities who develop various strategies to cope with barriers and hazards they encounter every day.

literature, to the methodology used for data collection, to the data collected relating to human and non-human actors, to a discussion of the findings and finishes with a conclusion and future work. Chapter 2 that follows this introduction includes the foundations for this research including the perspectives of human ecology and material culture, and is followed with an introduction to actor network theory. In addition, three models of disability that aid in understanding and interpreting the collected data are also introduced in Chapter 2. Chapter 3 highlights the methodology by detailing the multiple methods used to gather the data. The methodology chapter describes significant details about the primary data collection including ethical considerations, approach taken, and nuanced aspects of each technique used. Chapters 4 and 5 present the data collected in a relatively pure format by describing the project in detail. Chapter 4 presents the data resulting from the non-human actors and chapter 5 presents the data resulting from the human actors. Chapter 6 is a discussion on the major findings of the research, which involves the emergent themes relative to how disability is characterized within the design process. Themes include shifting agency, talk around disability, motivation, material and immaterial things, time and budget and designed artifacts. These themes reveal a range of information about disability and designing that are significant to future projects, future design methods and the material culture of what appears to be a relatively simple office space. Chapter 7 wraps up this thesis with a summary of the research including implications and future research.

CHAPTER 2 LITERATURE REVIEW & BACKGROUND

Introduction

This chapter is a literature review and background providing the foundations of this research, material culture and design studies, along with other theories that inform the work herein. A background on material culture and design studies illustrates the perspective and the approach taken, whereby the other theories aid in providing the lenses to better understand the issues relative to this work (e.g., framing of research question, set up of research design, analysis of data).

Material culture, on the one hand, is defined as the study through objects of beliefs of a particular community and society at a given times (Prown, 1982). That is, material culture scholars look into the production, consumption and mediation of material things or objects in society. On the other hand, design studies scholars have traditionally studied the design process by focusing on, for instance, how designers think, how they work in teams, and how they consider user groups while designing. The research herein extends explorations into design process by looking at an object and the culture embedded within that object, known as material culture. Utilizing lenses of material culture helps better understand societal viewpoints of disability and how it is characterized within design process of an office space. Along with this, the work herein also explores disability with a vision towards better understanding how material culture, design, and issues pertaining to disability come together.

The theories employed in this research are those central to material culture, design studies, and disability studies. In material culture, seminal

research on the meanings of objects is considered, while in design studies theories on the design process and theories on how to design for others are considered. Beyond the fields of study, actor network theory where non-human things are noted as having agency (Kirchhoff, 2009) is also relevant to the research herein. For disability studies the models of disability—religious, charity, medical and social—are also considered (Devlieger et. al, 2003). Consequently, this research conjoins actor network theory and disability studies to understand the creation of an object of material culture, in this case an office space.

Design Studies & Material Cuture

This work is positioned within the field of design studies and material culture; therefore, literature from each of these domains is drawn upon including descriptions of key concepts. Designed things are sometimes considered to be a blend of art and technology that belongs somewhere between the two with art at one end and technology at the other (Clay, 2009). An example of such a blend could be the designing of a building, where the architect/designer is concerned with the available technology to give it structural integrity while also considering aesthetics and the impact the building will have on the visual environment. Designing things mean marrying human needs and desires with the available technologies of a particular time (ibid). Progress in objects, technology, science and electronics has the ability to provide better ways of doing things but also to change human needs, desires, expectations and requirements. Therefore, designing and design process is constantly changing and evolving with time. The success of capitalism has always depended on the capacity for new

products to be designed. Design has altered the ways people see commodities and objects. In the history of every industry, designing has become necessary as a separate activity in production once a single craftsman ceases to be responsible for every stage of manufacture from conception to sale (Forty, 1986).

Designed objects carry the scars left by the body in motion and display the process of its design and the pattern in the mind of its creator (Glassie, 1999). Therefore studying designed things provide an understanding of the social world of things (Appadurai, 1986) and help define the culture—values, ideas, attitudes and assumptions—that are embedded into objects of everyday life. One way to arrange the categories of information within which objects absorb significance, is to envision contexts as a series of occasions belonging to three classes—production, mediation and consumption—that cumulatively create the life history of the object (Glassie, 1999). While contexts of production are about the designers and design process, contexts of consumptions are about consumers (ibid). Mediation on the other hand connects the two, balancing production against consumption and enfolding their similarities and differences (ibid). It explores the roles of different channels such as television, magazines, and literature play during mediating between consumers and producers (Lees-Maffei, 2009). Also, contexts of mediation help form consumption practices and ideas about design (ibid). The research herein explores the context of production through the design process of Premier's Council office renovation.

Design Process & Designerly Ways of Knowing

Designing is considered to be an activity where designers have to use a great deal of things at their disposal to solve a problem including their knowledge, personal experiences, creativity and powers of thought (Dorst, 2003). It is an activity that involves a harmonious assemblage of various parts towards a common goal, which is called the design process. Design processes have been studied for quite sometime by design scholars (e.g., Jones, 1963; Archer, 1963/64; Alexander, 1964) and are described as a reasoning process, made up of many chains of decisions, where the interpretation of the design problem and possible solutions cannot be separated. Dorst (2003) describes deign problems as moving targets that are very vague at the beginning but as designers acquire more knowledge during the design project these start to evolve. At the onset of designing, many activities take place in order to inform and inspire the exploration in the design problem. Sanders and Stappers (2008) describe the front-end activities as 'fuzzy' due to their ambiguity and chaotic nature (see Fig 2-1). It is during this fuzzy phase of designing that designers are trying to understand the requirements, needs and desires of the client and balancing

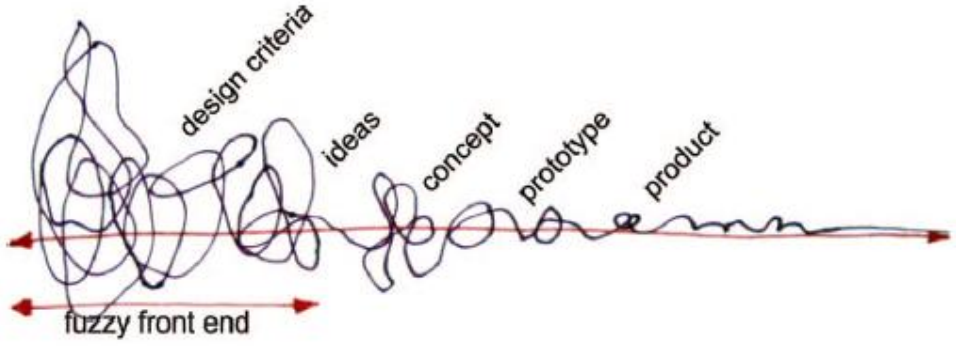

Figure 2-1: Representation of Design Process Model (Sanders & Stappers, 2008)

them against creativity, time, cost, available materials and technologies (ibid). Therefore, design problems can be considered as a situation of tension that initiates and drives design and when the design problem is solved the tension is more or less relieved. In addition, during designing problems and solutions are very unstable and are always evolving throughout the process. Consequently designers experience periods of exploration to bridge problems and solutions through emergent ideas. According to Jones (1970), the most difficult and challenging part of designing is to have to constantly shifting design problems more often than anticipated in order to find the best suited solution, making the process of designing very iterative and time-consuming.

Therefore designerly ways of knowing is defined as something distinct from the usual scientific and scholarly ways of knowing (Cross. 1982). According to Cross (ibid), scientists problem solve by analysis and designers problem solve through synthesis. Designers first work towards understanding the given problem, then define the problem, analyze it to formulate requirements and then finally, generate possible solutions. Subsequently each solution is explored in order to investigate if the consequences meet the requirements and then the best possible solution is chosen. In design practice this is recognized as the generic design process (see Figure 2-2). Research into design method and design process has mainly been studied by observing designers in their natural work setting resulting in the creation of number of design method models (Strickfaden & Heylighen, 2009). One of the early generations of design method model involved presenting design process in a very prescriptive and scientific way of

composing of three stages: analysis, synthesis, and evaluation (Alexander, 1964; Jones, 1963). Continuous

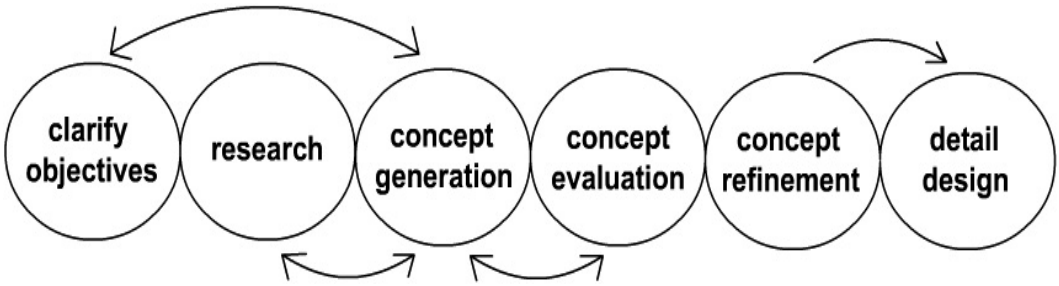

Figure 2-2: Generic Model for Design Process (Strickfaden, 2006 based on Cross, 2000; Ulrich & Eppinger, 2000)

research into design methods describe it further as a chain of interlinking parts and elaborate it as a series of design activities loosely followed in order, with particular parts of the series being re-visited iteratively at regular intervals before reaching the end of the product development (Cross, 2000). The research herein continues to look into the design process through deconstructing the creation of a single object, in this case a designed space.

Human-centred Design

When engaged in the design process designers typically conduct research, particularly on the target object they are creating and the people they are creating it for. Research can be done separately or can be embedded in the design process (e.g., part of the concept generation phase or evaluation phase). For the purpose of the research herein, when discussing the research phase of designing it is in relation to how designers find out about disability. That is, a designer may research to find out about what kinds of products need to be designed, what kinds of details to design, and/or the needs, desires and expectations of target audiences. In the case of designing for people with

disabilities the process can be particularly compounded since there are many different disabilities resulting in a myriad of needs, desires and expectations. That being said, it is valuable for designers to fully research—explore, consider, reflect and clarify—on the needs of the end-users before starting to develop the device or product. Stephen Wilcox (2013) provides some important reasoning for user research that include: 1) user research before design process help avoid usability flaws once objects have been created which can cost both time and money; 2) without initial user research, it becomes to difficult to know if the object will fit into the users' context and meet their needs; and 3) the range of solutions that can be imagined in a design studio, office or conference room is much narrower than the facts on the ground or the actual environment of where the device or product will be used (ibid). Due to the growing awareness of these important aspects of research into user needs, during the design process, designers and design researchers often use various methods of assessing products.

Involving and integrating end-users before, during or after design process to gather important insights into users' needs is a methodology known as human-centred design. The term human-entered design is a general term that acts as an umbrella to other more specific design research methodologies such as user-centred design, participatory design, evidence based design, experience based design, and empathic design. In user-centred design (Jordan, 2000), users are involved during design process, increasing the knowledge and awareness designers have about users and therefore, positively impacting the design process in an effective and efficient manner.

This results in products and devices that satisfy both functional and emotional needs of individuals (Alejandro & Colin, 2012).

The participation of users in design process is continued to present day but with more focus on users' attitudes (Strickfaden & Devlieger, 2011) towards the particular object in their actual environment in order to explore identify future opportunities rather than on the identification of adverse consequences of the object. In order to see things from the user's point of view rather than assuming and imagining their needs, designers are starting

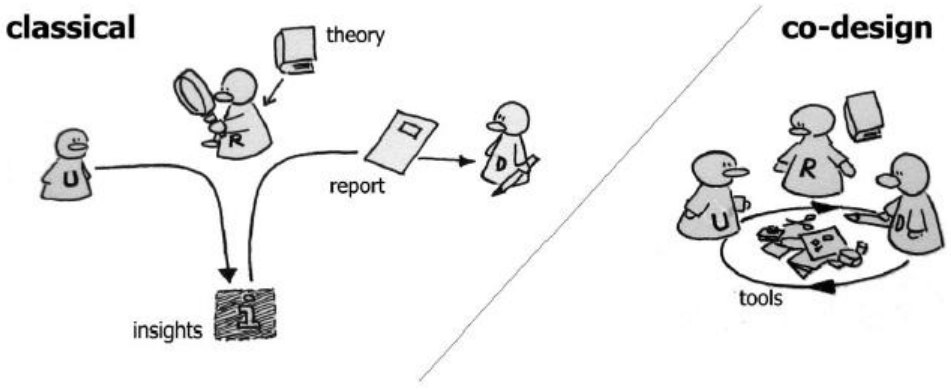

Figure 2-3: Representation of Classical Design versus Co-design (U=user, R=researcher & D=designer) (Sanders & Stappers, 2008)

to adopt ethnographic field research involving observation, interview and conversation with real people (Thomas & McDonagh, 2013). Ethnographic field research incorporates and integrates the experiences and insights of all stakeholders—designers, users, researchers—involved thereby creating a collaboration that aid in generating more holistic solutions for products, services and interfaces. Such collaboration and collective creativity in design process is described as co-design by Sanders & Stappers (2008), where designers and people not trained in design work together in design development process (see Figure 2-3). On the contrary to classical design

where designers, researchers and users are segregated, co-design is very much an integration of evidence and experience-based design. Evidences of user experiences gathered through ethnographic field research are combined with user-engagement throughout design process to create an empathic design. Empathic design (McDonagh et. al., 2011; Thomas & McDonagh, 2013) is described as a design strategy where both the designer/researcher and user are dynamic elements in the process. Empathic design approaches allow designers to create effective design outcomes by developing understanding and empathy—intuitive ability to identify with others' thoughts and feelings— with the end-user.

Disability & Human-Centred Design

Within the scope of human centred design there are initiatives that are launched to promote universal usability where designers and researchers choose to or are required to consider all potential users including those with disabilities. Such initiatives and movements include universal design, accessible design and inclusive design. Universal design was initiated at North Carolina University by Ronald Mace and others (*The Principles of Universal Design*, n.d., ¶ 1), accessible design was a term coined in 1980's to describe the value of universal design (Welch, 1995), and inclusive design (Coleman, 1994) focuses on ensuring that mainstream products are accessible to a wide range of users. The term universal design involves fundamental guidelines and principles of universal design that was developed by a group of architects, designers, engineers and design researchers (ibid). This group of individuals collectively established seven principles for universal design that include: flexibility in use; simple and intuitive use;

perceptible information; tolerance for error; low physical effort; and size and space is provided (ibid). The universal design philosophy suggests that design ought to be accessible and usable by the greatest number of people as possible to the greatest extent possible. According to North Carolina State University, College of Design, (2006) accessible design generally refers to requirements that need to be met for those who have mobility impairments (*Definitions: Accessible, Adaptable & Universal Design,* n.d., ¶ 2). Accessible features therefore include items such as entrances free of stairs and steps, wide doors, sufficient clear floor space for wheelchairs, lower countertop segments, lever and loop type handles on hardware, knee spaces under sinks and counters, seats at bathing fixtures and grab bars in the bathrooms and an accessible route through the house (ibid). Finally, the concept of inclusive design, similar to universal design, embraces the idea that design needs to consider and respond to the different needs of the diverse human population, not only those with disabilities, but also differences associate with gender, race, religious beliefs, sexual orientations and so on (ibid).

It is starting to become a common practice among the design community to use the aforementioned ways of design research and more designers are beginning to design for and with people. Even so, more often than usual designers happen to centralize and emphasize their own experiences while designing (Morrow, 2000; Strickfaden & Heylighen, 2009). Designers often acquire such self-centralized emphasis during their education in architecture, when they tend to become increasingly remote from the experiences of others and start to prioritize and emphasize language

codes, rituals and stylistic preferences associated with architecture while designing (Wilson, 1996 in Strickfaden & Heylighen, 2009). This self-emphasis approach makes it problematic to develop empathy, which is much needed in creating human-centred objects rather than those that are more designer-centred (ibid). In addition to such a self-emphasized design approach, it is often assumed during product design that the products will be used by individuals who have two working eyes, ears, legs, feet, hands, in addition to the ability to mentally process information in a very coherent way (Lepofsky & Graham, 2009). Such assumptions and centralization of designer's own image during the design process negate the experiences of valuable user/experts in the society, especially marginalized groups consisting of people with disabilities. Their experiences and expertise are very important in evaluating existing products and places as well as new designs in developments. Consideration of such expertise also provides designers with unique and expanded insights that allow them to go beyond the needs of an average user in order to translate needs to form as both productive and innovative.

People with disabilities are often excluded from the research and design process and resulting service developments due to the nature of their perceived physical or intellectual disability, which can create challenges such as obtaining an informed consent or even communicating thoughts during the process (Kroll & Morris, 2009). There can also be ethical challenges when involving people with disabilities in the design process and involvement of clinicians may also be needed (ibid). Even when people with disabilities are included in the design process they may have such different specialized

needs therefore providing conflicting requirements for the final product (Newell & Gregor, 2000). As noted by Kroll (2011), the most common reason for people with disabilities to be excluded from the research process occurs when needed accommodations that would allow for a significant interaction with the research team are not made. Even so, designers typically understand disability in two basic ways: 1) through guidelines and other objects; and 2) through people. The research herein works towards exploring and understanding each of these through the models of disability and theoretical framework of actor network theory.

Disability Theories

According to World Health Organization (WHO), disability is a complex, dynamic, multidimensional and contested part of human condition (WHO, 2011). WHO also suggests that more than 15% of world's population experience disability and that disability will affect almost everyone at some point in his or her life temporarily or permanently (ibid). In addition, people with disabilities generally have poorer health, lower education achievements and fewer economic opportunities leading to higher rates of poverty (ibid). Responses to and definitions of disability have changed since the 1970's mostly by the self-organization of people with disabilities who wanted to depict the topic of disability as a human rights issue (ibid). In the late 20th century, many countries (e.g. Australia, France, South Africa etcetera) passed different acts and bills to reduce negative attitudes towards disability (*Disability Discrimination Information,* n.d., ¶ 3). Many English speaking countries also embraced such laws including Americans with Disabilities Act (1990) passed in United States of America, Disability Discrimination Act

(1995), passed in countries like United Kingdom of Great Britain and Northern Ireland. The Ontarians Disability Act (2005) was passed in the province of Ontario, Canada to aid in advocating for the rights of people with disabilities. These acts were implemented in order to reduce discrimination against people with disabilities. According to United Kingdom's Disability Discrimination Act (1995), disability is defined as "a physical or mental impairment, which has a substantial and long-term adverse effect on a person's ability to carry out day-to-day activities" (*The Disability Discrimination Act,* n.d., ¶ 2). The American with Disabilities Act (1990) "prohibits discrimination on the basis of disability in employment, State and local government, public accommodations, commercial facilities, transportation and telecommunications" (*The Americans with Disabilities Act. Checklist for Readily Achievable Barrier removal,* n.d., ¶ 1). The purpose of the Ontarians with Disability Act (2005) is to develop, implement and enforce accessibility standards "in order to achieve accessibility for Ontarians with disabilities with respect to goods, services, facilities, accommodation, employment buildings, structures and premises" (*Accessibility for Ontarians with Disabilities Act,* n.d., ¶ 3). These acts in general aid in creating human rights and advocate for facilities and services that do not disable people. Even so, it is currently recognized that designed products can be disabling due to exclusion based on the ability expectations[4]

[4] Ability expectation as defined by Gregor Wolbring (2012) signifies that one desires or expects certain abilities. Ability expectations differ for individuals where certain ability is regarded as more essential compare to the others. Ability expectations within a cultural context are often influenced by dominant societal viewpoints.

(e.g., assumption that people can walk up stairs, see elevator buttons and more).

Historically there are four different models of disability that help describe how disability is understood in different cultures and different contexts. It is interesting to consider these four models in connection with the design process to better understand how designers are considering disability within their design projects. The oldest model of disability is described as being the religious model where disability is understood as a punishment inflicted on an individual due to the actions committed by a person or their family and in some cases can also be considered as a gift or blessing

Figure 2-4: Charity Model of Disability (Adapted from Harris & Enfield, 2003, p. 172)

(Devlieger et. al., 2003). In addition, many cultures associate disability with sin and shame causing stigmatization of the whole family; lowering their

status or even leading to total social exclusion (*Models of Disability*, n.d., ¶ 10).

The second model of disability is linked with the religious model and is called the charity model (Devlieger et. al., 2003). In this model (see Figure 2-4) disabled people are depicted as victims of circumstances who are deserving of pity. In addition, in accordance with the charity model, people with disabilities are considered to be lacking the appropriate capabilities to help themselves, which result in dependency on others (*The Four Models*, n.d., ¶ 1). That is, a person with a disability is considered to be in a tragic situation and are in need of help—charity and welfare—that include special services such as special homes, schools and institutions because they are different and need to be looked after (ibid).

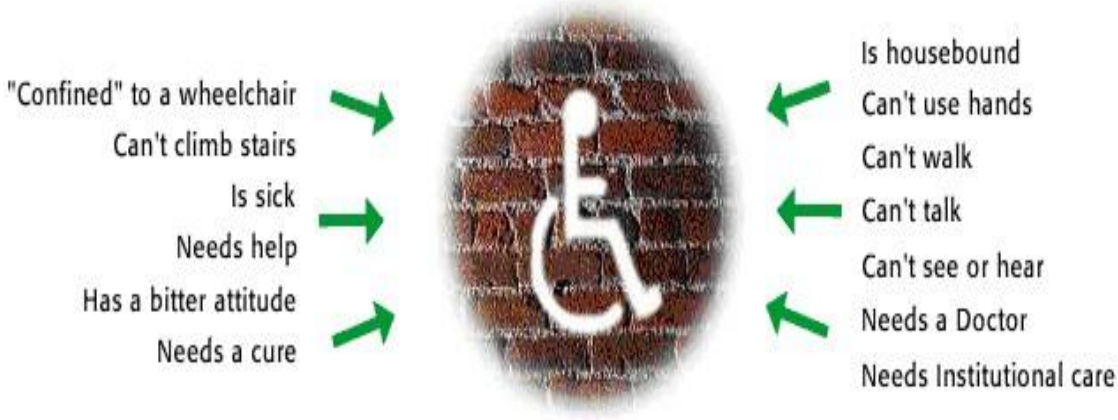

Figure 2-5: Medical Model of Disability (Adapted from Models of Disability, n.d., ¶ 5)

The third model, the medical model of disability, is recognized as the most dominant model in present day and acknowledges disability as problem of the individual caused by disease, trauma or other health condition. With the medical model, disability is seen as something that is linked to individuals where they must be ‘cured’ or ‘fixed’ in order to return to the

‘normal life’ (as defined by people within society) implying the concept that people in disabilities are somehow ‘abnormal’ (*The Four Models*, n.d., ¶ 2). Similar to the charity model the medical model also promotes special services for people with disabilities such as hospitals, schools and supervision by social workers, medical professionals, therapists, special education teachers who decide and provide special treatments, education and occupations to disabled people (ibid). The medical model mostly focuses on what a person cannot do rather than what they can do (see Figure 2-5). Advocates for and people with disabilities have generally rejected this model because such models regards people with disability as those who are lesser because they are nor ‘normal’ which results in lower self-esteem, undeveloped life skills, poor education and higher unemployment levels.

Figure 2-6: Social Model of Disability (Adapted from, Models of Disability, n.d., ¶ 14)

The fourth model of disability was developed as a response that challenges the medical model (*Models of Disability*, n.d., ¶ 12) and is called the social model. This model of disability indicates that disability is not an individual problem but a social issue that is caused by policies, practices, attitudes and/or environment (ibid). Unlike the medical model, the social model doesn’t consider disability as an attribute of an individual and focuses

on changing the barriers in an environment and the attitudes in a society rather than relying on ‘fixing’ or ‘curing’ those with impairments (ibid) (see Figure 2-6). An individual’s environment prominently impacts the experience and extent of disability (WHO, 2011). Environments with inaccessible design features create and enhance disability by creating barriers to social engagement, participation and inclusion. In order to improve the lives and experiences of those with disability, the social model suggests accessible design of the built environment and transport, signage for those with sensory impairments, opportunities for work and employment and so on.

These four models of disability—religious, charity, medical and social—are utilized in this research as lenses in data analysis to understand societal views on disability especially how different actors perceive, characterize and mirror disability within design process. The models were developed to understand the relationships that disability have with society. Therefore the four models are not isolated rather it could very well be argued there are blurred lines between the models and within the models. An example of this could be that a disability organization that provides services to people with disability (e.g., CNIB, CPA) is simultaneously based on the charity and social models where these provide services that are charitable may result in promotion of more interaction and inclusion within the society.

In addition to these models, the theoretical framework of Human Ecology and actor network theory is also employed to further explore how disability is characterized within design process.

Human Ecology & Actor Network Theory

Human ecology and actor network theory are separate programs of study that each approach an understanding the world, including the relationship people have with things, from an interconnected perspective. The value of considering these perspectives is that they provide a more holistic, networked or ecological perspective. That is, the holistic outlook attempts to acknowledge and present the complexity of a situation or

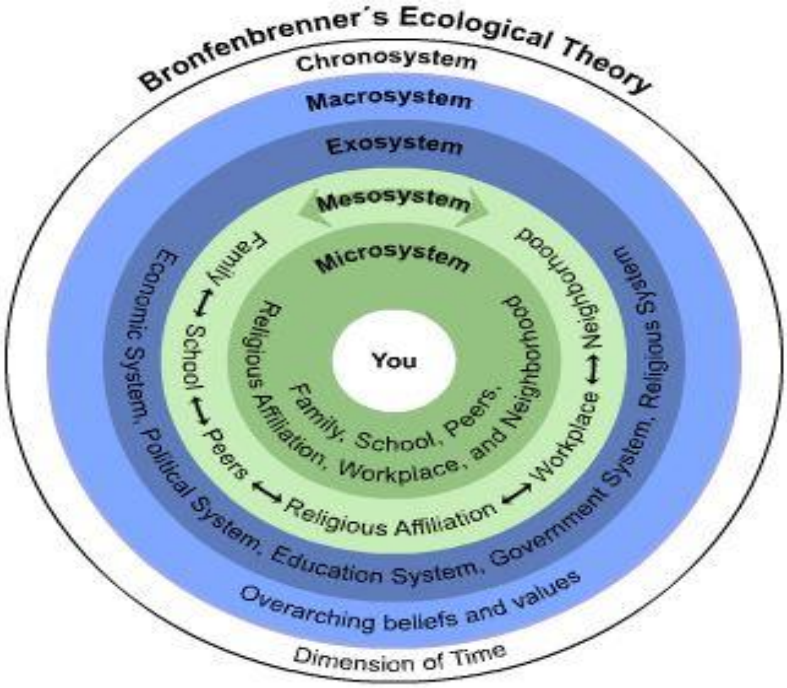

Figure 2-7: Representation of Bronfenbrenner's Ecological Theory (Adapted from, Isabela Ordonez's Landscape Portfolio, n.d., ¶ 14)

relationship. In addition, both human ecology and actor network theory recognize the presence of objects in people's lives as being central and part of an overall ecology or network. That being stated, it is important to define human ecology and actor network theory in order to establish some of the core aspects of the research herein. First, human ecology focuses on humans as both biological organisms and social beings who are in interaction with

their environment (Bubolz & Sontag, 1993). Human ecology, according to Foley (1987) is defined as "the study of the interactions of human with the their environments". Foley further explains that the term 'human ecology' expresses a broad ambition to understand human behaviour in general. The foundations of human ecology are based on Bronfenbrenner's ecological theory (1994). According to Bronfenbrenner (1994), an individual's interaction with the environment and with others is essential for development and growth. Bronfenbrenner explains there is more than one environment for an individual and they can be differentiated as the microsystem, mesosystem, exosystem, macrosystem and chronosystem (see Figure 2-7). The microsystem is explained as the most immediate environment of the developing individuals such as family, school, peers, workplace, neighbourhood and so on. The mesosystem consists of the individual's interactions that take place between two or more settings such as relation between home and school, school and workplace (Bronfenbrenner, 1994). The exosystem is explained as the relationship between two or more settings of which in at least one doesn't contain the developing individual but the events that occur in such linkages indirectly influence the individual's immediate environment (ibid). The macrosystem is defined as the larger cultural context that include issues of cultural values, material resources, belief systems, life styles and life course options embedded within these broader options (ibid). Finally the chronosystem expresses the change or consistency over time both in the individual and in his/her environment, for example, the changes that take place in the individual's family, social life and employment over a period of time (ibid). Bronfenbrenner's theory as

shown through the model is foundational to human ecological thinking. Bronfenbrenner's ecological theory acknowledges human relationships that take place within environments. Interestingly, however he does not explicitly acknowledge the objects that are naturally part of the interactions within those environments. In addition, Bronfenbrenner's Ecological Theory helps understand an individual's development through the complex interactions with various environments but it doesn't explore the idea of agency. For example, the macrosystem is explained as the larger cultural context that contain among others the idea of material resources but it doesn't explore in details the agency material resources have and how they also influence the individual's development and environment through networks and environments.

Actor network theory provides a platform to discuss the design process by considering all the actors that are involved within it including both human and non-human ones. Actor network theory doesn't differentiate between humans and objects rather it suggests that both together make up a heterogeneous network, which then contributes to the patterning of the social network (Law, 1992). According to Law, human beings form social networks not only by interacting with other human beings but also with a plethora of non-human actors. Non-human actors are considered to be any material objects or artifacts that mediate interpersonal interactions in order to create artifacts, agents or institutions (ibid). Human actors in this study are those who have influenced the outcome of the design and those who have experienced the space after it was built. Non-human actors in this research include materials that were used during the design process such as drawings

and sketches, models, guidelines, timeline, budget and more. Non-human actors are considered to be major participants in the interactions between products, artifacts and people (Henderson, 1998). Further, actor network theory acknowledges that non-human actors have agency or power, which support human interactions and activities people engage in. An example of explorations into interactions of human and non-human actors while designing for disability is the study about designing accessible Brussels metro done by Strickfaden and Devlieger (2011). In the metro project, Strickfaden & Devlieger explore how the designers consider on the embodied experiences of people with disabilities to improve the network of Brussels metro including human and non-human actors. The focus of the improvements included guidance systems, travel information and placement of objects such as art for orientation and navigation (ibid). In order for improvements in design features of those mentioned, designers considered many important details of human interactions with non-human actors such as the position and orientation of a person's body while reading maps or when facing information panels (ibid). Similar to the study of the Brussels metro, the research herein explores human and non-human actors. A significant difference, however, between the metro project and the Premier's Council is that the metro was studied in real time revealing an increased understanding of disability through the body and non-human actors. The Premier's Council differs in that it is studied retrospectively to understand the potential agency of human and non-human actors. This approach provides a different opportunity to understand disability as it manifests in design process.

Summary

The literature review within this chapter aims to illustrate a foundation to better understand issues relative to the research project of this thesis. The chapter herein summarizes the existing literature on design studies, design process and disability within design process. The four models of disability—religious, charity, medical and social model—are also explored to understand different societal viewpoints of disability. The literature on material culture helps understand the approach and perspectives taken for the research. In addition human ecological along with actor-network-theory is identified as key to understanding the relationship between humans and their environment and the agency humans and non-humans have within that environment.

CHAPTER 3 METHODOLOGY

Introduction

Qualitative methodology is best suited for the objectives and research questions outlined in this research because this type of methodology aims to reveal the nature, patterns and quality of spoken interactions (Mercer, 2010) and the details of a network. Qualitative inquiry is empirical, situational and personalistic, emphasizing the viewpoints of participants that strive to be as naturalistic as possible. Considering these important features, for the purpose of this investigation, a retrospective case study method is taken in order to reconstruct and capture as much information about the design process of the PC as possible. A case study facilitates an investigation of complex phenomenon within their context (Baxter & Jack, 2008) and typically includes an extensive variety of data (Taylor-Powell & Renner, 2003) including questionnaires, individual interviews, observations, documents and reports (see Figure 3-1). A retrospective case study means re-constructing something that was done in the past. The retrospective case study for this research involves the recreation of the design process of the renovation of the PC office space, designed in 2008. Due to a temporal gap of three years (when the renovation began) the data gathered is predominantly made up of materials that are remembered by participants, have been documented or kept. Consequentially, there is some distance from the design process, which has both pros and cons. The pros are that people have had time to reflect on the office design and the process of creating it. The cons are that some of the details of the design process might have been lost and some of the memories about the creation process may be skewed.

This chapter explains the mixed method qualitative approach that was utilized for the purpose of this research including the researchers' approach, the research participants including human and non-human actors, methods of data collection, various data types and data analysis. In addition the chapter also include ethical considerations, rigor and the limitations of the study.

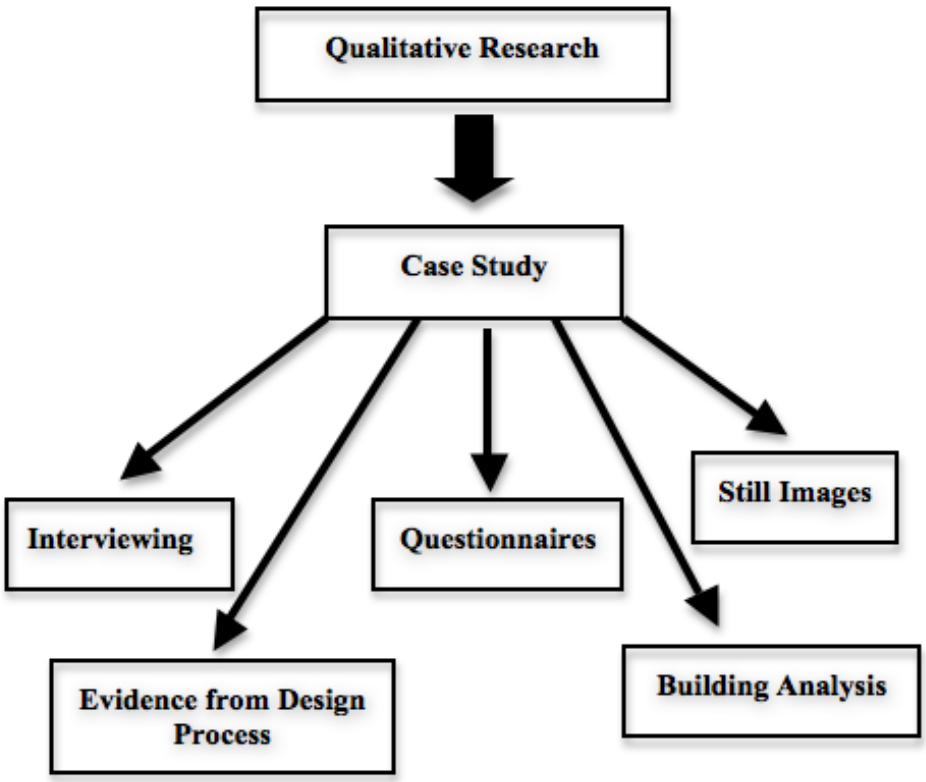

Figure 3-1: Summary of Methodology

Approach

The researchers involved in this study include four team members. The student researcher and author of this document has been studying design, design process and design research for the past three years. The senior researcher and principal investigator on a broader project titled 'Explorations into the Factor of disAbility in the Design Process', Dr. Megan Strickfaden, is an assistant professor in material culture and design studies. Dr. Strickfaden overlooked the entire project, led the research team and was

part of many phases of the study including data collection and data analysis. The two other researchers are also students involved on the broader project. Lara Pinchbeck, a Master's student in University of Alberta at the department of human ecology and also works for the City of Edmonton in city planning. Pinchbeck provided constructive feedbacks throughout the different phases of this research. Adolfo Ruiz is also a Master's student in the Department of Art and Design at the University of Alberta and was part of the research during site visits and analysis. The research team are the main research instruments whereby their perceptions and skills are central to the information collected. The goal of the researchers was to collect information that has natural contents and uncover its meanings by descriptive, exploratory or explanatory procedures (Burton, 2000).

The approach taken by the researchers to further develop their skills as a research instruments is that of reflexive methodology (Alvesson & Sköldberg, 2000) where the researcher develops a greater self-awareness of their thoughts and actions (Osterman & Kottcamp, 1993). The four researchers belong to different background and academic disciplines. In order to reflect on the research content and communicate ideas, each researcher kept an organized method of self-reflection such as a personal journal or diary created an awareness regarding any limitations or gaps in knowledge they might have. The relexive approach also helps reduce any assumptions or misconceptions about disability, design or design process that may arise during any phase of the study including data collection and data analysis.

The student researcher's approach was that of an insider and outsider to gain both subjective and objective insights about design, designers and design process. The student researcher completed her undergraduate degree in biological sciences, making her an outsider to design and design process. The outside doctrine allowed the researcher to study the Premier's Council as more of an objective, neutral and detached observer (Merton, 1972). The outsider approach also helped confront any biases the researcher may have had about the artifact and human and non-human actors. Her insider approach comes from her experiences as an everyday consumer of designed products and also as a graduate student at the department of human ecology where she took various courses on design and material culture. The insider doctrine (ibid) allowed the researcher to understand the experiences of the community to which she can relate. The student researcher was able to engage with the participants and share experiences to gather a richer set of data (Dwyer & Buckle, 2009). The insider/outsider approach enabled the student researcher to position herself differently at various phases of the research, which aided in reflection and subsequent understandings of how her position affected the research process (Serrant-Green, 2002).

The Premier's Council as a Non-Human Actor

Non-human actors are considered to be any material objects or artifacts that mediate interpersonal interactions (Law, 1992) between humans. The most obvious non-human actor for this project is the Premier's Council space itself. The PC is a physical space where people work and meet on issues relating to disability. According to the information gathered through the interviews, it became known that that Premier's Council office

was first located on Whyte Avenue in Edmonton. The employees and those associated with the Council felt the office seems "tucked away" and needed to be located in downtown, which was considered to be “the hub of businesses”. The office space on Whyte Avenue was not adequate and was barely accessible for employees and visitors. The goal was to create a newer office space that better suited needs of employees and visitors. With mutual agreement from employees and the Alberta government a space was found in the HSBC building in downtown, Edmonton and a lease was secured. The office was originally located on the 9th floor of a highrise building. After the office was set up, it was soon realized by those associated with the council that the space was inadequate in size and it had shortcomings related to accessibility features to accommodate the needs of the employees and visitors. Two employees at the time, including the executive director, had mobility impairments and another employee had vision loss. In addition to the needs of the employees the boardroom was considered to be inadequate in size and accessibility for employees, visitors and council members because it was two constricted to fit more than one person in wheelchair. Finally, the washrooms were not accessible and the employees had to go to another. It became obvious, there was a major need for renovation and Alberta Infrastructure was contacted. After the request for a renovation was approved, Ron Wickman was contacted as the prime consultant. Wickman later retained an interior designer to aid in completing a renovation to the office space on another floor of the same building. The design process of the renovation was collaboration between the architect, the interior designer, a project manager from Alberta Infrastructure, and also with the employees

who were working at the PC at the time. It is this design process of the collaboration between the various agents that the research herein captures with the aim of better understanding how disability is characterized. There Premier's Council office renovation was completed within four months in 2004/2005.

Seven Participants as Human Actors

The reconstruction of the retrospective case study of the Premier's Council began with designer/architect Ron Wickman who was the primary

Table 3-1: Human Actors/ Participants of Premier's Council Office

Human Actors – Premier's Council				
Participant Code	**Country of Origin**	**Profession**	**Area(s) of Specialization**	**Years in Practice**
2012ab-1/7-M	Canada	Architect	Accessibility, Disability and Universal Design	17
2012ab-2/7-F	Canada	Interior Designer	Interior Design, Professional Designation for Bath and Kitchen	11
2012ab-3/7-F	Canada	Supervisor of Day to Day Activities at Premier's Council	Government Relations and Advocacy	15
2012ab-4/7-M	Canada	Project Manager	Fast tracking work, scheduling and diplomacy	27
2012ab-5/7-M	Canada	Manager, Strategic Analysis	Social Work	30
2012ab-6/7-M	Canada	Assistant Deputy Minister	Alberta Environment & Sustainable Resource Development	28
2012ab-7/7-M	Canada	Deputy Secretary of Cabinet	Finance & Administration	32

consultant for the renovation project. During the interview with Wickman, he pointed out eight other prominent human actors involved in the project.

Table 3-1 Human actors/ Participants of Premier's Council office renovation shows the seven participants who were interviewed and indicates their professions, areas of specializations and years in practice. The six participants were an interior designer (2/7), an employee and also one of the user/experts of the PC office at the time of design (3/7), a project manager who works for Alberta Infrastructure (4/7), a manager at the Premier's Council (5/7), the executive director, another user/expert, of the Premier's Council (6/7), and the assistant to the Deputy Minister (7/7). Each of our participants were involved in the renovation of the Premier's Council office space (see table 3-1). In addition, there were two other employees who were involved in the design process but were not available to participate in the study. They were each invited numerous times to be involved in the study but did not respond or participate due to personal reasons.

Ron Wickman (participant 1/7) is an Edmonton-based architect who specializes in what he calls "barrier-free design". He has been practicing architecture for 17 years. He began his career as an architect-intern for an Edmonton-based architect firm between 1995-1997, where he worked on projects that ranged from public construction to residential interiors. In 1997, he opened 'Ron Wickman Architectural' firm and has been working on disability-related projects that range from residential barrier-free bathroom to public spaces including a renovation at the Alberta legislative building in Edmonton. Wickman's focus is on designing for disability and uniquely works on commercial, residential and public buildings.

The interior designer (participant 2/7) received her professional designation as an interior designer in 2002 and then in 2010 received her

official designation as kitchen and bathroom designer. She is predominantly experienced in issues related to disability and accessibility through her work with Wickman and the PC office renovation was her first project with him. Since then she has built up her expertise in the area of designing for disability through a range of projects from commercial to residential designs that often involve barrier-free issues. She has continued to work with Wickman and has won several awards since the design of the Premier's Council.

The third participant (3/7) is legally blind and acted in the role of user/expert for the Premier's Council project, she is considered a user/expert because her personal experience with blindness was intended as an asset to designing a more inclusive PC space. Her duties as an employee of the Council office mainly included organizing day-to-day activities for the council and the committee members. At the time of the renovation she was an employee who worked with one of the other employees (participant 5/7), a social work by profession who was employed as one of the managers at the Premier's Council.

The project manager (participant 4/7) had 27 years of experience managing projects with a specialization in fast tracking work, scheduling and diplomacy. The project manager was present during most of the design process meetings at the PC to ensure sticking to the timeline and budget, and meeting the client's needs.

The executive director of the Premier's Council (participant 6/7) specialized in policy and public administration for the past 28 years. His main duties as the executive director were to oversee the all the activities of

the council. He was another user/expert for this project due to his experiences with mobility impairment and accessibility.

The deputy secretary of Cabinet (participant 7/7), at the time of the renovation of PC, was responsible for administrative matters including the budget related to the council.

These seven participants were interviewed separately in order to gain an understanding of their perceptions of the project during renovation.

Other Non-Human Actors

Much like how the six participants other than the architect were revealed during the retrospective case study, the non-human actors other than the office space were revealed during the study. It was known at the onset of the study that there would be numerous non-human actors because of the nature of design projects. That is, on the one hand, it was speculated that the project would have included drawings, samples of materials such as carpet or marmoleum, and other documents. On the other hand, other materials that held high significance came to the fore as the project developed. The non-human actors are summarized in Table 3-2.

Table 3-2 Non-Human Actors of Premier's Council Office

Non-Human Actors
Building Codes
Guidelines
Design Standards
Timeline
Available Materials
Design Samples
Tactile Model
Budget
Drawings

Building Codes

Building codes were very important during the design process since the designers had to follow them strictly when creating the space. They had to abide by the codes and standards that are associated with accessible design. These codes include things like specifications and regulations regarding accessibility, plumbing and sewage, elevators, electrical structure etcetera. Edmonton city has it's set of building code and they can be accessed online from Government of Alberta website.

Accessibility Guidelines

There are many different kinds of guidelines, however the one used for the Premier's Council project was the Alberta Accessibility Guideline. The interior designer (2/7) indicated that she extensively used Alberta Accessibility Guideline during the renovation. The guideline states proper calculations and measurements that need to be incorporated in accessible space design. For example, it indicates that shelving, coat hooks and light switches have to be at an accessible height, glass doors need to include a contrasting a strip of color at eye level, sinks must have a minimum knee space of 735 mm and so on. The Accessibility Guideline is also the first artifact that is highly coded with disability.

Design Standards

Again, design standards vary dependent on a particular project. For the Premier's Council the design standards are relative to the building context and Alberta government standards for offices. That is, the office had a lease agreement, which meant the renovation had to follow the standards of the building. This required designers to create a space for a general

population (not so specific to the needs of the participants) so that it could not be used for others in the future. In addition, the office had to follow the standards of Alberta government office spaces, which meant certain square footage had to be allocated in a specific ways. In terms furniture and carpet, certain standards also had to be maintained cooperating with the government standards.

Timeline

Another, non-human actors that is perhaps less apparent is the timeline. Timeline in this case refers to the schedule that the designers and builders had to maintain. The timelines is considered to be a prominent factor since the employees were in a space where it wasn't particularly accessible room and also, it didn’t have adequate room for navigation and interactions within the space. The place needed to be renovated relatively quickly in order to carry out meetings and gatherings in the office. In addition, a timeline is significant since rent is being spent on two spaces making the renovation process bit costly.

Available Materials

Available materials are multiple non-human actors that have the potential to significantly everyday experiences. When the building was being renovated the interior designer had to ensure the available materials met the needs of the employees. During the interview she mentioned that the 8 years ago the available materials were much different that what is available today. Available materials include marmoleum, furniture, fixtures, appliances, desks, chairs, storage units, sinks, coat hooks and more. On the most part, even though people with disabilities use the space, specialized furniture and

fixtures are not needed. It is the placement of these that is significant. That is, space around furniture and fixtures can be too great or too little.

Design Samples

Other non-human actors used during the design process include design samples. Design samples were used to communicate ideas with various stakeholders during the process. The samples had to represent what the outcome would be in order for the team members to envision what the final product may look like. The samples were utilized during design to communicate ideas back and forth. Therefore design samples acted to mediate decision making during designing.

Tactile Model

Another important non-human actor that was utilized during the design process was a tactile model of the floor plan of the Premier's Council. The tactile model was predominantly created for participant 3 who is legally blind so she could understand the space with hands and participates in the discussions. The tactile model was the second object that was coded in disability meaning that it would not have existed without a participant with vision loss.

Budget

Budget is a less tangible non-human actor that typically has a great deal of power in a project. Usually budget is the dominant factor but in this case in order to portray the Alberta's stand on disability the budget was generous and it wasn't on top of the list of non-human actors as it often is in architectural projects. Budget has the potential to narrow down designs and can often affect creativity but on the most this was not the case for this

renovation. The budget for the Premier's Council was a factor however when it came to deciding which elements were most important.

Drawings

The final but not least significant non-human actor is drawings. Interestingly, drawings are both used to convey thoughts, messages and ideas. For example, the designer's drawings are given to the structural engineers for design implementation and they are also used during the design process for better discussion around design with various stakeholders.

Data Collection

Qualitative data consists of words and observations from a variety of sources (Taylor-Powell & Renner, 2003). For the study herein, data

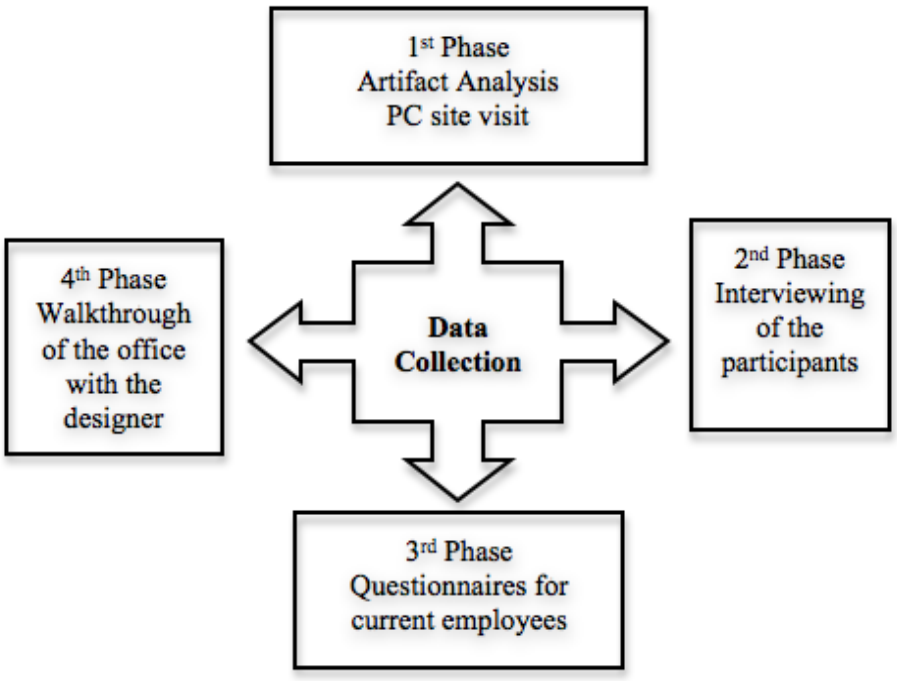

Figure 3.2: Summary of the Data Collection Process

collection occurred in four phases (see Figure 3-2) and consisted of four phases that included individual interviews, observational field notes, questionnaire, and any documents (e.g. guidelines, standards etcetera)

associated with the office renovation. The phases involved: 1) analysis of the site and building; 2) interviewing people who were involved in the design process; 3) conducting questionnaire based survey for those who are current employees of the space and finally; 4) evaluating the site with the prime onsultant and architect of the space.

For phase one, artifact analysis, the senior researcher and two student researchers visited the PC site and building. They individually recorded their observations of the space by taking still images and field notes without any discussion with the other researchers. After a week, each researcher produced individual reports that were based on their observations and the reports were then discussed as a group. Individual reports and still images were made available for all the researchers via email after the discussion. This phase was very important to data collection because the knowledge of each researcher revealed significant information about the office space. It helped to raise questions and enable the interviews to take place because the researchers could be informed, understand what was being discussed and be more critical when doing the interviews.

Phase 2 involved interviewing the participants. The interviews were carried out in the order shown in table 3-3 and included the designer/architect Ron Wickman followed by interior designer, the user/expert, the project manager, the strategic analyst, the executive director and the assistant to the Deputy Minister. They were each interviewed individually using a semi-structure interview procedure with interview guides (see Appendix A, B & C). The semi-structured interview was deemed appropriate because it involved many open ended questions for the

participants creating opportunities for dialogues, conversations and discussions. Three different interview guides were developed in order to focus the interview questions for the different roles that the participants played in the design process. The first interview guide (see Appendix A) was for the designers with specific questions on design elements and principles as it was assumed that the designers have a different level of understanding and expertise about designing. The second interview guide (see Appendix B) was created for any participant who had disabilities the guide focused more on the senses and bodily experiences of the participants. The third interview (see Appendix C) was for participants without a disability and it also focused on personal experiences and perceptions of disability. Four of the interviews were completed face-to-face while the others were done over the phone. Although it was preferable to complete the interviews in person because it is more personable and there is the possibility of following expressions and gestures, it was not possible in all cases. Ultimately, the researchers followed the lead of the participants, of which some were not available to participate in person.

The first two interviews with Wickman and the interior designer were carried out with the senior researcher and two student researchers while the student researcher conducted the other interviews. Prior to each interview the participants were given an informed consent form (see Appendix D & E) that explained the project, ethical considerations associated with the study along with contact information of the researchers. The interviews with the architect and the interior designer took place in their design studios. In the case of the architect his studio is also his home and for the interior designer the

interview took place in a meeting room at her workplace. Both these participants are the principal owners of their businesses. The interview with participant 3, 4 and 7 took place over the phone while participant 5 was interviewed at a coffee shop and participant 6 was interviewed in his current office. All the interviews were recorded using an audio recording mp3 device. An important advantage of using a recording devise is that it eliminates problems associated with selective recording of data, either consciously or unconsciously, on the part of the interviewer (Bucher et al., 1956). It also allowed the interviewer to devote attention to the participant rather than taking notes during the interview or trying to reconstruct the interview from memory after the completion of the interview. For the architect and interior designer the senior researcher took extensive notes during the interviews, whereas during the rest of the interviews the student researcher took more basic notes while carrying out the interviews. In addition to note taking, during the interviews with the architect and the interior designer photographs were taken of all objects and drawings the designers shared with the researchers. These photographs included floor plans, materials, drawings and more. Techniques for interviewing included active listening, pauses and 'uh-huh's in order to focus on the words and expressions of the participants.

For the third phase, a questionnaire (see Appendix F) comprising of open-ended questions was used to investigate the lived experiences of the current employees within the PC office space. The questionnaire was created based on site visits and the interview guides. The student researcher printed and dropped off the questionnaire at the Premier's Council to be completed

by the employees at their own convenience. Once completed, the researcher was contacted by one of the employees at the Premier's Council office and the documents were collected. This questionnaire was aimed at better understanding the spatial experiences of the current employees of the office and was not part of the retrospective case study in a major way per se.

The fourth phase of data collection included further explorations in the office space. The student researcher visited the Premier's Council office with the designer/architect. The researcher and the architect did a walkthrough of the space while Wickman explained the design features including what he perceived as the universal benefits of the space and why and how they were incorporated. This post-evaluation of the site was recorded using an mp3 device to be transcribed and analyzed. Again, strictly speaking this phase wasn't aimed at reconstructing process, but better understanding the design outcome of the process.

Finally, when all four phases were completed, all drawings, drafts, documents and samples associated with the renovation were completed. In addition, personal memos and diary of the researchers were also collected for analysis.

Data Types

A variety of data types were collected throughout the retrospective case study. The data provides a rich picture of the design process. The resulting data types collected include: 1) audio recorded interviews in the form of words, phrases, stories and remembrances of the creation of the Premier's Council office space; 2) field notes including personal memos and diaries resulting from observation and researchers' ideas; 3) photographs

taken during interviews of documents, drawings and images shown by participants; 4) photographs taken during site visits; and 5) documents, drafts, drawings, design samples gathered from the participants (see Table 3-3). These data types illustrate the complexity of reconstructing the design process through a retrospective case study. That is, there are many different kinds of data including verbal, image-based and objects (documents, drawings, material samples, models). This complex set of data is a rich collection of information that tells a detailed story about the PC office and particularly the concept of disability. The positive aspect of having this breadth of data is that it can be triangulated by comparing and contrasting. The challenging aspect of these data types is the sheer amount of data and the diversity of types, which makes comparing and contrasting a significant task.

Data Analysis

An inductive approach common to qualitative research is followed during data analysis instead of imposing explicit theories to test a specific hypothesis (Burton, 2000). This study is data driven which means that the data speaks for itself by allowing the conceptual themes embedded within to emerge. To begin, the verbal data is first transcribed and organized for further analysis. The transcription took place in two stages: 1) every utterance was transcribed known as verbatim transcription and a naturalized version; and 2) each transcript was converted into a denaturalized version where the verbatim materials were revised for better readability and a more coherent impression.

Table 3-3 Summary of Data Types Collected During the Study

Data Type **Data Sources & Supporting Technology**	**Collection**	**Processing**	**Analysis**	**Dates**
1st Phase Group-Reporting on the Premier's Council Space Written Notes & Still Images [Digital Camera]	MS, AB, AR	Producing Reports MS, AB, AR Filing AB	Discussion AB, MS, AR	14/06/12
2nd Phase Interview with Ron Wickman (1/7) Audio & Video Recordings, Email Correspondence, Field Notes, Digital Files related to the project provided by RW [Video Camcorder, Mp3 recorders]	MS, AB, AR	Filing, Downloading, Transcribing & Scanning AB	Discussion AB, MS	21/06/12
Interview with Interior Designer (2/7) Audio & Video Recordings, Still Images, Field Notes & Drafting Documents provided by TM [Video Camcorder, mp3 recorder, & Digital Camera]	MS, AB, AR	Filing, Downloading, Transcribing & Scanning AB	Discussion AB, MS	26/06/12
Interview with Participant 3, 4, 5, 6 & 7 Audio Recordings, Field Notes & Email Correspondences [Mp3 Recorder, cellular phone & cellular phonene]	AB	Filing, Downloading, & Transcribing AB	Discussion AB, MS	29/06/012 – 05/12/12
3rd Phase Questionnaire for Current Employees	AB	Filing & Organizing AB	Discussion AB, MS	17/08/12
4th Phase Evaluation of the Premier's Council Space with Ron Wickman Still Images & Audio Recordings [Digital Camera & Mp3 Recorder]	AB	Filing, Downloading, & Transcribing AB	Discussion AB, RW	27/09/12

Data analysis then followed in three phases; identifying categories, identifying patterns and connections within and between categories and interpretation (Taylor-Powell & Renner, 2003). For the study herein, the verbal data is categorized using preset and emergent categories. The two preset categories are human and non-human actors. In addition to these, the researchers looked for emergent categories and themes while reading the text with as few preconceptions as possible. Seeking categories and themes is often driven by the researcher's own knowledge and interests within the context. Some of the emergent themes were agency, artifacts, designed artifacts, feel, and talk around disability.

For the next phase of analysis the data was organized into the categories identified earlier to search for patterns and connections within and between the categories (Taylor-Powell & Renner, 2003). This final phase requires interpreting the data by explaining and reporting the findings by using the found themes and categories in the data. The researchers agreed to divide the data as interviews, observational notes, still images and documents and reports. Following this, the data was put back together to gain a more coherent picture of the data as a whole.

It is important to note that during data analysis concepts from the models of disability are employed as lenses to understand the gathered data. The models of disability (Devlieger, et. al., 2003) are differentiated in three ways including religious/charity, medical and social. These concepts are utilized during the data analysis as lenses to better interpret and understand the responses of the participants gathered during the data collection. In addition, central concepts in actor network theory were also employed as a

means to better characterize disability. In addition, the researchers worked together during data analysis and interpretation by reviewing the data independently and then discussing it together in order to compare the identified categories and to resolve any discrepancies in meaning. The researchers continued to reflect on their practice by keeping journals and writing memos (Maxwell, 2008) during analysis to stimulate and capture their ideas about the data (Burton, 2000). The benefit of such reflection contributed to the emergence of new ideas or possible connections between earlier discarded ideas and newer developing themes.

Ethical Considerations

Ethics of qualitative research design pose distinctive demands on principles of informed consent, confidentiality and privacy, social justice, and practitioner research (Shaw, 2008). Existential and authentic fieldwork involved the negotiation of trust between the researcher and the participants. Based on the University of Alberta protocol for human participants in research the proposed research including the interview schedule were presented to the ethics review board. For the purpose of this study, the participants were provided with a detailed informed consent form (see Appendix E Consent Form), notifying them about the purpose of the study along with the duration, location, and contact information of the researchers involved. Continually informing and asking permission established the needed trust to go on further in an ethical manner.

The participants gave consent both verbally and in writing. Anonymity and confidentiality is respected and the participants were able to withdraw from the study up until data analysis. With the exception of the

architect, Ron Wickman, all participants are kept anonymous. In the case of the architect it is already public knowledge that he was involved in the design of the PC. In fact, Wickman is a research partner in the project and he suggested that a case study on the Premier's Council project be completed. The right to ownership of raw data is respected and if any of the participants withdrew from the study, none of the data containing their thoughts would have been published. The participants' information and collected data is kept safe and was only shared with the research team during all phases of the research. The participants' social-construction, background and cultural beliefs were respected at all times. The participants were considered to be the part of the research enterprise and as collaborators (Punch, 1986) once they consented to be part of the research, meaning that for publications other than the thesis the participants would be consulted. The research team also acknowledged that the consent form is a static, past tense concept and qualitative research is an ongoing, dynamic, changing process (Munhall, 1988). Due to unforeseeable events and consequences, the researchers facilitated negotiation and renegotiation to protect the collaborators' human rights. To prevent misunderstandings, all the participants involved agreed to upon the various stages and activities of the entire project including the dissemination of findings.

Rigor

In order to achieve rigor in qualitative study it is important to establish auditability, applicability and confirmability within the project (Ryan-Nicholis & Will, 2009). In this study auditability was achieved by making personal memos with observations, biases and opinions to constantly

reflect on the research methods, data collection and data analysis. To achieve applicability, triangulation across data sources and data-collection procedures was used to ascertain the congruence of findings among them and also to seek respondent validation about the data (ibid). The issue of internal validity was addressed by using triangulation; an approach to research that uses a combination of more than one research strategy in a single investigation (Steubert & Carpenter, 1999). In this study, interviews of the participants were combined with audio recordings, still photographs, questionnaires, documents, drafts and site analysis. In addition the collected data was analysed by two members of the research team in order to create checks and balances and to aid in removing pertinent assumptions and biases. The building analysis was done by three researchers individually and were compared and contrasted as a group. The insider/outsider approach of the research also allowed for a fine balance of subjectivity and objectivity in the research and also, made it possible to gather a richer set of data by being able to engage with the participants. Mixed methods such as the ones described here provided snapshots of the entire picture providing enrichment and rigor to the findings.

Limitations

There are several limitations in this study of the PC office space. These are linked to assumptions and preconceptions but also linked to the nature of the chosen study and methods used. Most importantly, was that at the onset of the study, the Premier's Council office was presented as a very favourable representation of disability, which made it challenging to look at the design process of the office renovation neutrally. The researchers

assumed the office was the result of social model of disability where human interactions and attitudes take prominence over the medical model of disability. Another limitation is the method of retrospective case study, which makes it difficult to capture the design process to its full extent. Design solutions are tangled webs of decisions that are so closely dependent on one another that it is challenging to find a logical point of 'how' and 'why' explanation after the design project has been completed (Dorst, 2003). Since the design problem was already solved it can become difficult for the designers recollect the design process in great detail (ibid). In addition, not all the participants involved in the design of the PC office were available to take part in the study and those who did partake were accessing information from their memory and that could be questioned or challenged in terms of accuracy. In fact, in several instances participants contradicted one another when it came to remembering who accomplished what during the design and other details. Additionally, the questionnaire that was created was provided to the current employees of the Premier's Council office and none of them were present during the design process.

Summary

In order to meet the objective of characterizing disability within the design process, a retrospective case study was designed and completed to reconstruct the design process of the Premier's Council with as much details as possible. Proposed research including the interview schedule was presented to the Ethics Review Board of University of Alberta and an approval was obtained prior to beginning the research. A qualitative methodology was used to investigate the complex phenomenon of designing.

The team members of the research kept an organizing method of self-reflection to be aware of any limitations, biases or gaps in knowledge regarding the research they might have. The data collected was in four phases that included artifact analysis, interviews with the human actors/participants, and questionnaire for the current employees of the PC and a walkthrough with the architect for the final phase. Documents, drawings, drafts and samples associated with the design process were collected and photos were taken during the interviews with the participants. The data types included an extensive variety of data including verbal transcripts, field notes, photographs and documents, drafts and design samples. The data was analyzed using an inductive approach in order to identify categories, identify patterns and finally, connections within and between categories and interpretation of those categories. In addition, during data analysis, the concepts from four models of disability and actor network theory were used as ways to understand the gathered data. Rigor in this research was established by triangulation across data sources and data collection procedures, reflective approach by researchers and also by maintaining a balance of objectivity and subjectivity through the insider/outsider approach. The main limitations of the study included the method of retrospective case study, which meant not all details of the design process could be captured and also, not all the members of the design team were available for interviews. Those who did partake in the study were working from their memories that are 8 years old therefore sometimes making it a challenge to investigate the logical point of ‘how’ and ‘why’ explanations.

CHAPTER 4 DATA (NON-HUMAN ACTORS)

Introduction

This chapter aims to provide an understanding of the non-human actors involved in the design process through the collected data of this project. The non-human actors are represented through images, if available, along with the descriptions from the participants during the interview while the human actors are represented through the information the participants have provided themselves during the interviews. The Premier's Council office space, main non-human actors, is represented through images of the space and design features along with descriptions provided by the participants. Other non-human actors —drafts and drawings, samples (e.g. surface treatments such as flooring or counter tops), available materials (e.g. furniture, faucets, kitchen appliances), timeline and budget— are represented through participants' descriptions along with any available images. The goal of this chapter is to gain a better understanding of non-human actors as data in order to complete an in-depth discussion for chapter 6.

Premier's Council Office Space

The Premier's Council on the Status of Persons with Disabilities was established in 1988 with the aim to improve the lives of persons with disabilities by addressing disability related issues and communicating them to the Government. The PC office space is a physical place where the Premier's Council works and meets. It is located in the heart of downtown Edmonton on 106th street and Jasper Avenue (see Figure 4-1). The office was first located on the ninth floor of the same building and it was shifted to the eleventh floor due to lack of space and issues relating to accessibility. The

renovation started at the end of 2004 and took four months to be completed by spring of 2005. The architect, an interior designer and seven other employees of the office were present during the design process for the renovation. Only seven of the nine participants were available for the interviews. The meetings took place once every two weeks in the boardroom of the ninth floor office where drawings, drafts and samples were brought in

Figure 4-1 – 4-4: Exterior View of the HSBC Building

by the architect and the interior designer for further discussions with the other participants. The PC renovation was completed in the eleventh floor suite of the HSBC building (see Figure 4-2).

Description of the Context & Access

In order to understand the building and space it is first important to describe them. From the exterior the building is a traditional skyscraper designed in 1974 that has twelve floors and has two entrances. The front of the building faces Jasper Avenue and has a few flights of stairs (see Figure 4-3) while the side facing the 106th street has a ramp (see Figure 4-4) for wheelchair accessibility. The front entrance is not accessible for people with mobility challenges because stairs need to be navigated. While the side entrance doors can be accessed by the ramp and the door opens automatically with a push button. Upon entering the side entrance there are elevators

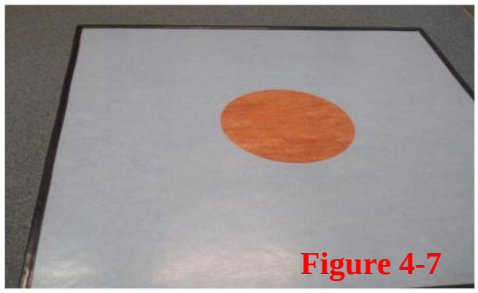

Figure 4-5 – 4-9 Entrance to the Premier's Council Office Space

located about eight metres directly ahead. Buttons equipped with Braille are on the outside of the elevator as well as in the inside. The elevator space is rather standard but suitable for wheelchair turning. As the elevators open on the eleventh floor the renovated PC office is located on the right side (see Figure 4-5) and for visitors to enter the office a bell must be rung. There is another push button that automatically opens the entrance (see Figure 4-6) for ease of accessibility. Also in the entrance is a specialized floor detail for wayfinding in the form of a textural difference for those with visual impairments. The floor details are made from marmoleum (see Figure 4-7) and are a square with a circle in the centre. This marmoleum detail is repeated throughout the PC space. According to Wickman, "it [marmoleum] comes in funky colours so its kind of fun and it's the most sustainable flooring product because it actually gets stronger as it ages." He adds that marmoleum is made of all "natural products and" most importantly "it is durable against wheelchair use".

After entering the office there is another marmoleum square (see Figure 4-7) to indicate a point where a decision must be made. This is a common approach to wayfinding, especially for people who are visually impaired or blind, to provide cues that assist in orienting the person to where they are in a space. The marmoleum squares are carefully placed and are five feet by five feet replicating the standards for a wheelchair radius turn and made with contrasting colours (see Figure 4-9). People who are completely blind will not able to see the contrasting colours but those with vision loss can. In addition, the marmoleum provides a tactile difference with the carpet under the feet that help to orient a person.

Behind the curved wall (see Figure 4-8) there is a wooden handrail that acts as another guiding feature and also as a support unit should a person need it (see Figure 4-10). The handrail can be used as a guide to move along the trajectory between offices and it has notches (see Figure 4-11) that line up with the entrance to the office spaces (see Figure 4-12). The notches act as an indicator to aid people with visual impairments to navigate the space without a cane or a dog. In addition to the feature on the handrail there are

Figure 4-10 – 4-14: Design Features Inside the Office

also other features in the space that are intended to help those with visual impairments such as the contrasting coloured strips on the glass doors so they don't walk into the glass. During the interview with participant 3 and 5, it was found that those strips were put in after few months after the completion of the renovation. This was because during a council meeting a person with vision impairment walked into the glass of the door. The

solution of placing coloured strips on the doors (see Figure 4-13) was a decision that was agreed upon collectively by the employees who worked in the PC office. Other design features that were considered within the Premier's Council office were the conscious decision to use products with tactile buttons instead of the touch screens. Such tactility attribute of a device allows people to learn how the buttons work for each function and to use them without any assistance from others. These products include the dishwasher (see Figure 4-14 and Figure 4-15), toaster oven (see Figure 4-16), microwave oven (see Figure 4-17), photocopier, and scanner/printer (see Figure 4-18).

Figure 4-14 – 4-18: Tactile Attributes of Appliances in the Office

At the time of the renovation there were two employees who used wheelchairs and one employee who was blind and the designers worked with all of them to create a space that allowed them to navigate the space

comfortably and independently in order to interact with others in the office and carry out their day-to-day activities fluidly.

In addition to design features within the space associated with visual impairment, there are also features for those with mobility impairments. One concept in designing a space to be barrier-free that allows for people with wheelchairs or crutches are to keep a space more open (see Figure 4-20). In addition, the hallways (see Figure 4-21) are created wide for enhanced mobility. The PC office was designed with curved walls (see Figure 4-22) rather than sharp corners, which makes the space more dynamic and easier for people who are mobility challenged to navigate and maneuver.

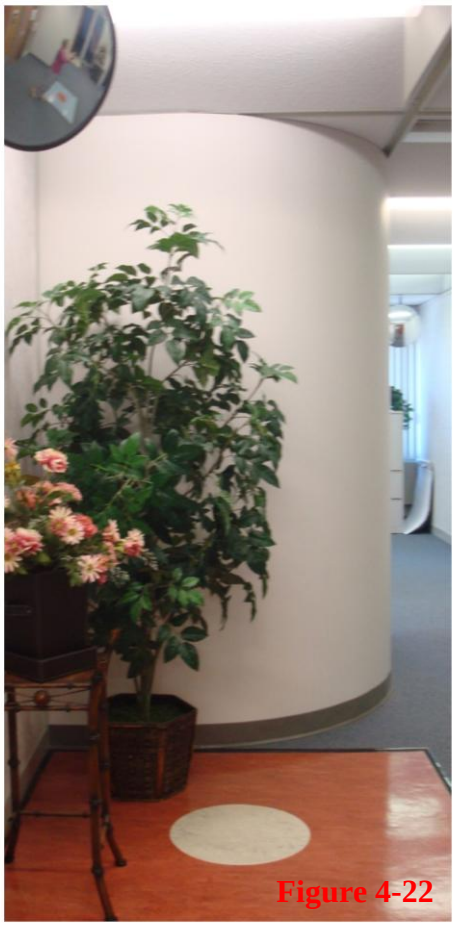

Figure 4-19 – 4-22: Accessibility and Barrier-Free Features of the Space

The boardroom (see Figure 4-19) was made to accommodate multiple wheelchairs for Council meetings. The interior designers speaks on the process behind the larger boardroom, "we also thought about it from the perspective of the council members that we had and what they would need coming in to have meetings at the office when there were people with various disabilities as well." Participant 6, an user/expert who uses power wheelchair, mentioned that the meeting space on the ninth floor was so small that only one wheelchair could be accommodated, which meant out of the two employees with wheelchairs only one could attend. While describing the

Figure 4-23 – 4-25: Accessible Washroom on the 9th Floor

spaciousness of the boardroom Wickman states, "we made sure that not only could somebody be sitting at a desk in a wheelchair but there was enough space behind so somebody in a wheelchair could come in and still get around the space". In addition to considering the boardroom space carefully, the

washroom space was also of great concern because access to water and toileting is often an issue for people with disabilities. On the ninth floor the employees or visitors did not have an accessible washroom inside the space and had to go to washroom outside their office for their toileting needs.

Figure 4-26 – 4-30: Accessible Washroom Designed by Wickman

It was important to Wickman to have a washroom within the space even though this was unconventional for the spatial arrangement within the building. Initially the project manager (participant 4) felt that the washroom could be used outside the office (see Figure 4-23) yet it was too spacious (see Figure 4-24) and the proper calculations for handrail and toilet placement were all wrong (see Figure 4-24). Wickman states that the washroom outside the office is, “the biggest ugliest universal toilet room you would ever see,

it's just huge and it's all white and the grab bars all wrong like nothing is right about this thing." Interestingly, in the design of washroom spaces it is important not to make them too small or too spacious. For instance, according to Wickman excess space can create problems for those with visual impairments since it can confuse them in navigation and orientation within the space. Participant 6 recalled an incident where there was a break-in over night when some people snuck into the outside washroom and stayed there until the end of office hours. They waited for everyone to leave and cut through the wall into the office and stole computers and other electronic equipment. Consequently a washroom inside the office space was created that balanced access, spaciousness and used various technologies to aid people with a variety of disabilities (see Figure 4-27). The washroom is located at the centre of the office contrary to the prior washroom, which was outside the office. It has a rounded wall and is shaped like a horseshoe (see Figure 4-26). There is a red strip that runs along the floorboard inside the washroom and on the outside there are glass bricks that provide natural light. Wickman said that the glass bricks were added, "so the natural light that's coming into the space can filter through into the bathroom" and that the "lights don't always need to be turned on". Everything in the washroom including the flush, soap and paper towel dispenser and faucets (see Figure 4-28 and Figure 4-29) are automatic. In addition to these design attributes, a five feet turning radius is used. Also the coat hooks inside the washroom are very interesting (see Figure 4-30) as it was built to hold only a certain amount of weight so that it could not be overloaded but also so that it was easier to get a coat or handbag off the hook. When asked why he selected

this coat hook, Wickman said that he used such a hook in a group home where suicides can be common incidents inside the washroom or closets. Although this space is not a group home the coat hook was something that Wickman liked and so he used it in the PC washroom.

As an artifact, the Premier's Council office space has a number of design interventions that are clearly coded in disability, while at the same time the space has the feel of a rather typical office space. For example, those coded in disability include the push button with handicap symbol at the entrance door, wide doors and hallways, handrails in the washroom and so on. Along with the practical features there are also designed elements that illustrate creativity and innovation.

Other Non-Human Actors

There are a number of non-human actors beyond the office space itself that are part of the design process. This section further explores these non-human actors through references from the participants, and available images. The following non-human actors were identified by the research participants as being significant in the creation of the Premier's Council office space. These are building codes, guidelines, design standards, timeline, available materials, design samples, tactile model, budget, drafts and drawings.

Building Codes

Codes are technical measurements based on adult dimensions and anthropometrics that aim to remove barriers between a particular individual and the facility that they are trying to access. Designing a space that is meant to be a "show case" for universal design required following specific set of

codes associated with universal design and accessibility. Participant 4 mentions in the interview that for government offices like the PC being barrier-free is a requirement, which basically means they have to meet the codes for basic office space. He mentions being familiar with the codes is very important for an employee at the Alberta Infrastructure and therefore, literature on specific codes and design standards are available to them at all times and they also have a technical resource group that updates that information on ongoing basis. Participant 3 talks about the codes as a minimum acceptable guidance and wishes the designers would "go beyond that standard to create a space that is fun and beautiful and doesn't have institution feel to it". She says, "people think well it meets code and I am like but the code is a minimum acceptable standard and when was the last time you said to your child, the pass mark is 50, so as long as you get 51 I am happy, in fact don't go any more than that cause we wouldn't want you to be too smart."

CHECKLIST FOR ACCESSIBILITY & UNIVERSAL DESIGN IN ARCHITECTURE

	WASHROOMS	Y/N N/A
	Single door entrance is optimal	
	Washroom door is wide,easy to approach,and open (not recessed in a narrow hallway)	
	For washrooms without entrance door,there is only one turn with clear corner so persons who are blind do not become disoriented	
	Proper signage located outside entrance and cubicle door	
	Sinks, garbage cans, etc. located around perimeter rather than in the centre of the room	
	Accessible sink (minimum knee space of 735 mm) with soap and towel dispenser close to sink at preferred height of 1200 mm (to wash and dry hands prior to wheeling); include low mounted or tilt mirror	
	ACCESSIBLE CUBICLE:	
	- minimum 1700 mm x 1500 mm	
	- door that swings outward so person in wheelchair can close it independently	
	- equipped with door pull handle, coat hook, grab bars at appropriate height and placement	
	- can be locked from the inside with a large,sliding latch (not thumb-turning)	
	- toilet paper reachable without leaning too far off toilet	
	- accessible toilet height between 400 mm - 460 mm	
	Self-contained,unisex/family washroom available,with proper signage provided in an accessible location (allows for any individual requiring assistance to be accompanied by a companion or attendant)	
	INTERIOR BUILDING ELEMENTS	
	Public and emergency phones mounted at an accessible height	
	TTY (built in typewriter) phone for users who are Deaf or hard of hearing	
	At least one drinking fountain at accessible height (610 mm from ground preferred) spout located near front,controls either automatic or easily operated, cane detectable. Proper knee space below	
	One accessible section of counter in all areas that serve the public	
	Shelving, coat hooks and light switches at an accessible height	
	Space for persons using wheelchairs to sit/park in all public seating areas, including companion (without blocking walk through areas)	
	Level wheelchair seating area (in theatres, lecture halls, sports arenas etc), to also include companion seating	
	Glass doors or partitions include a contrasting strip of color across at eye-level	
	ALARM SYSTEMS/ EMERGENCY EXITS	
	All alarm systems to include an audible and visual signal (e.g., flashing light)	

EDMONTON

CHECKLIST FOR ACCESSIBILITY & UNIVERSAL DESIGN IN ARCHITECTURE

The City of Edmonton Advisory Board on Services for Persons with Disabilities has created this checklist to promote the concepts of Universal Design. The Barrier-Free Design Guide provides only a minimum standard for accessibility. With an aging population and increased independence and involvement of persons with disabilities in the community, there is a need to exceed minimum standards for accessibility where possible. For example, many scooters today require a 10-foot turning radius instead of the standard five feet. Strollers for children are larger and require more room for maneuverability. Good design should incorporate principles of Universal Design, offering solutions as to how spaces can be designed and developed to meet the needs of all users. The following checklist draws attention to several areas where accessibility can be improved by good design. For additional information or alternate formats, please contact the Advisory Board office.

Phone (780) 496-5822
TTY (780) 944-5555
Transfer Code: DISBOARD
Fax (780) 577-3525
www.edmonton.ca/disability

THE ADVISORY BOARD MISSION:
"To promote recognition of the entitlements and service needs of Edmontonians with disabilities through awareness, advocacy and facilitating changes in City policy and practice."

Edmonton

Figure 4-31: Accessibility Guideline Used for the Design of the Office

Guidelines

Similar to Codes, guidelines are measurements created for specific purpose and in this case the interior designer mentions the "Checklist of Accessibility and Universal Design in Architecture" by the City of Edmonton (see Figure 4-31). The interior designer mentions that cabinets need to be of a certain height (48 inches) and that going above that creates a barrier between the individual and the cabinet, which causes a need for extra effort from the individual to access the cabinet. When considering the checklist the interior designer says, " we have it, we refer to it all the time."

Design Standards

Design standards are a non-human actor, like building codes and guidelines that are a large part of working in the building industry. Government offices in Alberta need to meet certain standards including having a specific number of cubicles for the general employees and having square footage allocated based on the hierarchy of the employee's position at the office. In regards to the public sector, the interior designer said, "they have four carpets that they will accept and the carpets that they accept to be perfectly honest aren't that nice." She further adds that even when producing drafts and drawings standards are also involved, for example, having proprietary specifications on the drawings is a "no no kind of thing". According to the interior design, the standards don't give her as much freedom to create and often project managers are not cooperative to different ideas presented when they seem to deviate from the standards. The main concern of project managers, according to the interior designer is about, "can we fit enough people in there? Just make it look nice." She indicates that

such limitations based on standards make it difficult to engage in the design process and particularly to create a connection between designers and the end-users. In addition to the government standards, the building also have it's own guidelines in order for the space to be leased to other businesses in the future. Therefore, the standards are embedded and often at odds with one another.

Timeline

Time and timeline are non-human agents that put a great deal of pressure on projects; therefore they can hold quite a lot of agency. In the case of the Premier's Council, there wasn't a rigid timeline set for the project to be completed but for the benefit of the employees it needed to be completed within a reasonable amount of time. The space on the ninth floor was not working well for the PC employees for the reasons mentioned earlier (e.g., accessibility, washroom access). In addition, like with any renovation, time is money. That is, the longer a renovation takes the more money it costs. This is due to having to maintain the rental of two spaces during a renovation (one to work in and the one that is being renovated) but also the fact that workers are paid by hours worked. Therefore, all the parties involved in this project including the designers, the employees and Alberta Infrastructure wanted the renovation to be completed within a reasonable time frame. The completion of the project took about three to four months and it had no real delays in terms of completion. Even so, the relatively quick timeline meant that certain materials for construction and certain finishes could not be used or done.

Available Materials

Materials that were selected for the renovation carry another layer of agency in terms of how they affect the timeline and also how they affect the overall feel of space once completed. The office was renovated 8 years ago and the ranges of products that are available today are different. The interior designer says, “it was tricky to find something that would meet both functional and aesthetic needs.” The space needed certain type of furniture for height adjustability but according to Wickman there wasn’t “much flexibility for the supplier for the space.” Other issues involving available materials included the edges of the marmoleum inserts, although Wickman wanted the carpet and the mamoleum strip to have a subtle transition, the contractor called him to let him know the product wasn’t available due to time and cost. Consequentially, the product that was available and was used did not create the kind of transition desired. One of Wickman’s concerns was that the transition strip also started to loosen up with more usage over the years, creating maintenance issues.

Design Samples

Other non-human actors include design samples including colour pallet for paint, flooring and other finishes. These were brought in the by the interior designer to illustrate and explain to the team about potential design concepts. The design samples were also meant to create conversations around design ideas and to evaluate these ideas towards improving and refining them. The interior designer brought in colour boards and larger samples for the employees and the project manager during the meetings to convey ideas about the intended design. The samples were laid out and the

team members were about to touch them and experience them while the interior designer explained them.

Tactile Model

A tactile model was used as a means to understanding and exploring the spatial environment of the proposed office. Models are commonly used by architects to explain aspects of a design to clients, so the use of a model was not that unusual. Interestingly, however, a tactile model was produced specifically to enhance discussions with the user/expert who was blind. Wickman created the tactile model (see Figure 4 – 31) of the floor plan to explain the spatial arrangement and design features during design process meetings. He states the reasoning behind the tactile model of the floor plan was so "she could actually physically feel with her hands the space."

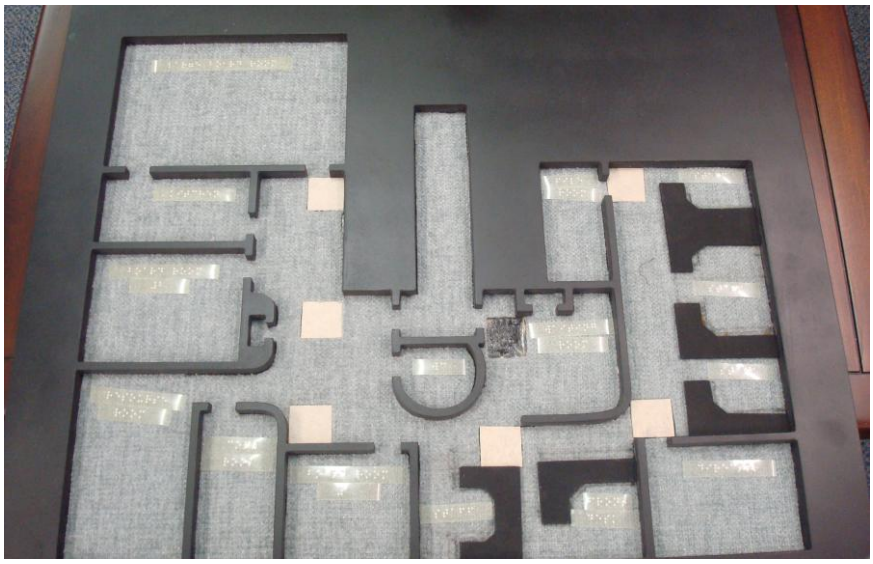

Figure 4-32: Tactile Model Built for the Blind User/Expert

Budget

One of the primary goals of creating a renovated space for PC office space was to illustrate what was possible in terms of universal design.

Therefore, it was meant to be a kind of showcase for designs of how offices could be more inclusive. Consequently, the budget for the renovation was likely more generous than it was for some other projects. Due to the temporal gap between this study and when it was created, it wasn't possible to access exactly how much the renovation cost. According to Wickman it was about "$130, 000." Although the budget wasn't a prominent issue in the overall project it was significant when it came to incorporating certain design features. For example, a strobe light was proposed to light the fire alarm for a visual cue for people who are hearing impaired, yet the idea was squashed partially because it was too costly (but also because it did not conform to the building lease agreement). In addition, the interior designer wanted to use different carpeting and it was not allowed for the same two reasons. The interior designer mentioned that trying to create a space with nice finishes and custom fabrics is often a challenge due to standards and budget for a government office.

Drawings

Drafts and drawings played a major part in the design process because these were key actors during the meetings that took place in the boardrooms. The designers would at first gather information from the clients about their needs and then would return with set of drawings at the next meeting for further discussion. Participant 2 was responsible for producing all the necessary drawings (see Figure 4-32) for this project and Wickman was the prime consultant and was responsible for reviewing and approving them.

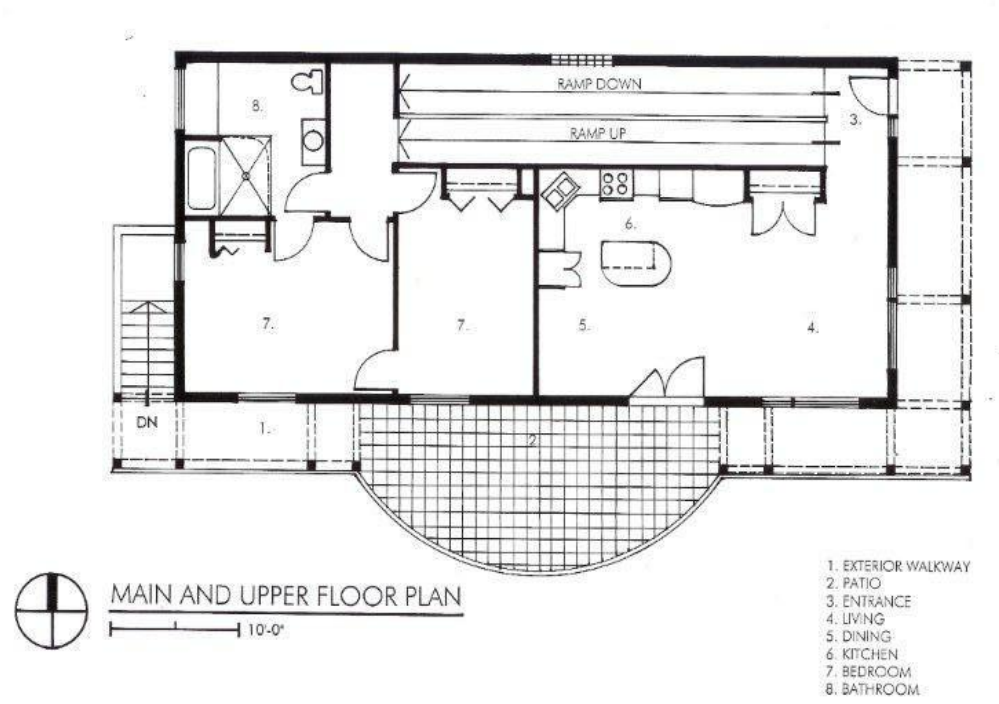

Figure 4-33: Floor Plan of the Premier's Council Office

Summary

This chapter began by providing a background on the Premier's Council and then went onto describe the design features of the current office located in Edmonton, Alberta. The purpose of the chapter herein was to describe the non-human actors of the design process in order better understand their characterization of disability within design process. The key non-human actors resulting form this case study are described and explained with data gathered from the interview and also with images when available. These descriptions are provided to illustrate the non-human actors as data. These raw data are core to exploring themes around the complex network of the design process for creation of the Premier's Council office space Naturally these non-human actors are not agents that work independently. These are 'activated' and given agency through the human actors described in the next chapter.

CHAPTER 5 DATA (HUMAN ACTORS)

Introduction

This chapter describes the human actors involved with the renovation of the Premier's Council office space. The participants' role in the project and in the design process is explored along with participants' views on disability and the design process. The following sections focusing on the human actors provide raw data including quotes of the participants along with their thoughts, ideas and understandings in their own words.

The Architect

In order to better understand how disability is characterized through the PC it is important to understand the architect who worked on the space. Wickman is known as an expert in barrier-free design and the Premier's Council was chosen as a case study to explore disability as a societal phenomenon. Wickman's background is relevant for many reasons illustrated here. To begin, Wickman completed Bachelor of Arts from University of Alberta and then attended University of British Columbia as an unclassified student for one year. Following this, he attended the Technical University of Nova Scotia for two year Bachelor's in environmental design and two years in a Master's of architecture. Upon graduation, Wickman worked with an Edmonton-based architect as an intern before opening his own design firm. Wickman has been practicing architecture through his own firm since 1995 and on average has worked on thirty projects per year that include public and private sector projects such as recreation centres and domestic homes.

Of most interest, Wickman grew up with a father who had mobility impairment from an accident involving an injury when a train door fell on his

back. Wickman is highly aware of how his father influenced his decision to be an architect, particularly due to exposure to the numerous barriers that his father faced in his everyday life. Wickman's father was Percy Wickman a Canadian politician who served as an alderman on Edmonton City Council from 1977 to 1986. He was also a well-known activist for people with disabilities. Wickman said, "having grown up with my father in a wheelchair has literally allowed me to wheel through my designs. So even though I am not physically in a wheelchair, I can do that quite easily in mind." Talking about the PC project Wickman mentions that this was the first time he worked very closely with a person who is blind, for his previous projects "mostly it had been people on wheelchairs".

Wickman was collectively selected by Alberta Infrastructure and also by the Premier's Council employees to be the designer for the Premier's Council because of his expertise and also because most of the employees had worked with him prior to the project and shared a comfort level with him. The employees of the PC felt it was easy to discuss their needs and wants with Wickman. Therefore, Wickman became the architect and primary consultant for the renovation project and describes his role as someone who is there at every meeting and gets to see the project from beginning to end. During the project he had to retain other consultants including the interior designer and the structural engineer. Wickman mentions that this project stands out to him because of the client's and end-users roles were so prominent right from the beginning. Such prominence was considered different from his other projects, particularly other projects with the same client. Wickman mentions, "when I do a job for Alberta Infrastructure I don't

necessarily meet with the end-user, it's often I am just dealing with the project manager and we just make it work." Wickman likes to credit the success of the renovation to heavy client and end-user involvement during the project. The design process involved meeting every two weeks, which included boardroom meetings where drawings, models, samples and drafts were used to discuss the future Premier's Council office.

The design of a project such as the Premier's Council office space is not exempt from challenges. Wickman discussed the challenge of creating a space that worked across disabilities for people with varying needs such as those with mobility issues or visual impairment. He says, "if you are on a wheelchair, I think you feel like you need more physical space, when you are blind you don't, actually that bigger space can be problematic." As an architect in order to accommodate the both of these needs, he had to "really just listen, really hard to what they are saying" and incorporate the lived experiences of a variety of people into the space. Wickman expressed his confidence towards his end-users as a consequence of his previous experiences. He felt that one of his skills was in creating dialogue around different needs, wants, expectations and specific design features. Wickman also felt confident towards his role as a leader in the project, for example, when the interior designer produced drawings and drafts he reviewed, revised and approved the drawings.

Wickman's expertise in barrier-free design and working with people who have disabilities was apparent through our discussions with him. When he talked about the "universal design principles" he mentioned the work he has done on spatial design included concepts around order, density and

complexity. Order, for Wickman is about," issues around way finding and circulation"; density is about making sure that "every part of the space is actually designed" without leaving any ambiguous space; and complexity "talks about the fun part of the design". Wickman indicates that complexity involves making sure that the colours and textures that are chosen are pleasing from tactile and visual points of view. Additionally, Wickman is critical about the PC office and talked freely about what could be improved in the space. He said that more could have been done on acoustics particularly. He also mentioned the craftsmanship of some of the building, such as the marmoleum squares within the carpeting, which he indicated as looking sloppy.

Finally, according to Wickman the design process was collaborative and he considered the end-users and especially the user/experts (employees of the Premier's Council) to be more like "co-designers" than participants. When asked what he might do differently he stated that, "ideally it would be nice to keep the end-user as part of the process from beginning to end. What [often] happens is the end-user is removed from the process once construction starts. So [when they were gone] that's when we had issues and problems—not big problems but problems nonetheless—during the construction process." When talking about disability within design process Wickman mentions that one of the challenge of incorporating disability related issues within the design process is the design world's perception of disability is that it is "a burden". He goes on to state " I know several architects who would rather see somebody come up with a wheelchair that can climb stairs than to look at designing a building without stairs."

Other Human Actors

Along with the architect there were a number of other human actors who took part in the design of the Premier's Council office space. Although it is known that nine people were involved the research herein only had access to seven people for interviewing. Of these people, two had disabilities, two were disability advocates and two had little connection with disability before the onset of the project.

Participant 2, Interior Designer

The interior designer was retained by Wickman to work on the PC project and it was the first time that they worked together. She graduated from University of Alberta in home economics before attending The Northern Alberta Institute (NAIT) for interior design. The interior designer was responsible for the drawings associated with the Premier's Council Office renovation. She was also responsible for choosing colours, certain materials, and furniture for the office. During the design process, she brought product samples and discussed them with Wickman and the employees before choosing them. The PC office renovation project was the first barrier-free projects she was involved in as a designer. She describes her role as, "the interior designer, the space planner, the choosing of the finishes and the detailing of the drawings." The interior designer spoke of her working relationship as, "[Wickman] and I would sit and we talk about the design. We would sketch it and then I would draw. Then he would look at it. So we were very much consulting with each other." The design process, according to the interior designer, happened in phases beginning with listening, and then gathering information from the clients to note down their needs and

wants. The next phase involved creating conceptual schematic designs with block diagrams along with colour pallets and sample boards. Following was the design development phase where drawings and drafts with proper dimensions took place in order to be sent for tendering. After the tendered design was implemented and during implementation/construction she states there was a site visit to "make sure the workmanship is correct and the design intent is still being adhere to." Following the completion of construction, a post-occupancy evaluation was carried out few months after to note the client's perceptions and the strengths and weaknesses of the space were discussed. The employees of the PC office along with the designers and project manager from Alberta Infrastructure were present throughout all the phases described here.

Speaking on the design process the interior designer (2/7) mentions, "it was challenging because you are dealing with people with sight limitations and mobility limitations. It's been 8 years and the range of products available today compared to the products available 8 years ago is different." Describing the employees who were present during the design process participant 2 states, "the people were wonderful, they were very engaged, very willing to be part of the process which is so tremendous and I think that's why it turned out so successful." She also adds that she viewed them as a "real resource" who were "very respectful" of the their expertise during the whole project. The interior designer communicated the colour pallet, sample boards and drawings thoroughly to all the employees of the office. In addition, the interior designer incorporated tactility into the samples she brought in so that she could communicate as well as possible

with the user/expert who is blind (participant 3) and the user/expert also had the opportunity to partake in the discussions as much as possible. The interior designer also discussed that one of the biggest challenges for her in a given project is to work with high quality that provide the intended finish for the space within the budget. When it came to the innovation of the PC office space, the interior designer said that the involvement with clients and end-users who were engaged during the whole process was unique. She adds, "I am more client-centered after that project. Of course there's a bit of ego when you are a designer, there's no doubt about that, but for the most part, I have changed my outlook. [A project] It is not about me, if the space doesn't work in the end then that's not valuable to anybody really."

Participant 3, Program Co-ordinator & User/Expert

Participant 3 was an employee of the Premier's Council who worked as the program coordinator and was responsible for managing and organizing the day-to-day activities. She mentions that the main motivation behind the renovation was that they were "running out of space". Expansion was necessary but there was not adequate room on the ninth floor to accommodate the expanding staff. A space on the eleventh floor came available. It was "basically an open room with no internal walls" and that meant a wider range of opportunities from a design perspective According to this user/expert, when discussing the expectations of the new space there was a need for something easily accessible because most of the employees had some kind of disability. They also wanted a spacious office so council members would be able to hold meetings comfortably. She states, "we had talked about universal design as part of our work when we go out in the

community. So we wanted to have a show place. Like a place that we could say we were walking the talk". Her main priority during the design process was to make sure that the "design would work for someone with a visual disability."

The user/expert mentioned that when it came to choosing an architect, Wickman was a "natural choice" due to his particular skill set in the field of design and disability. She was aware of him and his works prior to the Premier's Council project as they have both worked together on various City of Edmonton projects earlier. According to her, the design process took place in different stages where at first, it involved letting Wickman know about the functional aspects of the space including what needed to function within the space such as the number of cubicles, desks and cabinets. In addition, the particular needs and wants of the employees were also communicated to Wickman and the interior designer. Following these stages, the designers went away and came back with a floor plan, which was further discussed and refined. This was an iterative process that involved frequent meetings and extensive discussions with all the team members. The user/expert says, "we had lots of conversations and discussion with [Wickman] to make sure that what he was putting in front of us was what we had actually envisioned, because of course there are [different] interpretations." It was important to the employees that the new office space be a beautiful, aesthetically pleasing space that did not have an "institutional" feel or look like it was obviously for people with disabilities. The user/expert said it is often challenge to move away from the idea that disability is only about wider doors and ramps. She spoke about her

relationship with Wickman and stated, “Wickman is very good with me, you know because I couldn’t see what was going on, he would take the extra time and he would use my hand and run my fingers along the lines to show me what he had drawn so it wasn’t just verbal, there was tactile input as well.”

Talking about the marmoluem squares this participant mentions that it was a design feature they came up with as a group that wasn’t available in a book. She states, “I think often when we design, especially for people with disabilities, we forget that people with disabilities are people and fun is also a part of their lives and heaven help us, we need it more than others.” During the design process, she wanted to make sure things were colour contrasted to avoid confusion for those with low vision. In addition, participant 3 wanted tactile pieces and Braille signage to be incorporated since “it’s an essential piece of way finding” for those who are blind. When it came to the fun aspects of the design, the user/expert discussed a design detail that she thought was interesting: each cubicle has a glass block on top to allow ambient lighting and also, employees to see who is coming their way but since didn’t need the glass block, it was put at the bottom of her cubicle for her dog “to be able to sit and watch what was going on.”

When asked if there is anything that should have been incorporated in the place she mentions strobe lights for those who are deaf so “when the fire alarm goes off there would be a strobe light.” This feature was not incorporated because of cost and limitations within the lease agreement. Summarizing the complete design process from beginning till end, the user/expert says it was such collaboration that she not only felt “proud to be part of ” but also felt an ownership of the space. In addition, she was also

proud to show off the various design features during the many tours she carried out upon the completion of the space.

Participant 4, Project Manager

Participant 4, the project manager, is an employee of the Alberta Infrastructure and got involved in the Premier's Council office renovation when a request for an office renovation was put in the Infrastructure's planning department. He has 27 years of experience in the area of fast tracking work, scheduling and diplomacy. He described the paperwork that associated with a request for an office renovation during the interview; it usually requires that the client puts in a request and it would be reviewed by the planners at Alberta Infrastructure and following that a form would be filled up that specifies number of parameters such as, "how much area, how many offices, how many open work spaces, how many closed." After that, planners would find appropriate funding and following that a project manager is chosen.

Then with a collective agreement from Premier's Council and Alberta Infrastructure Wickman was chosen as the prime consultant for the project. Alberta Infrastructure had worked with Wickman earlier so they were aware of his expertise. The design process for the renovation of the space started soon after and the project manager's main role involved delivering "the scope of the work" while maintaining the quality of the work along with timelines and schedules. Speaking on barrier-free projects he mentions that "it is a requirement on all government offices," but for this specific space it was more important than just a standard government office. While talking about the renovated space he states, "we did design a very nice space, very

modern, it had a lot of what I would consider extra architectural features which you wouldn't have in a normal office." The space has "various degrees of curves" along with indicators for those with visual impairments. He further adds, "if you have a cane and you are following along a straight path there is nothing to touch but if the wall is curving along with you all the times, it kinds of leads you where you are going." The space was designed for "specific need" and not "just for aesthetic pleasing or aesthetic look or anything."

Participant 5, Social Worker

Participant 5 is another employee of the Premier's Council with an expertise in social work. He completed a Master's degree in social work and community development and has been working in the area of social work since 1982. At the time of the project he was working at the Premier's Council and continued to work from 2004 till 2009. Similar to the other participants, he describes the whole process as "very collaborative" where others were open and flexible to the ideas presented at the meetings.

Moving to the 11th floor with a space that would be completely designed for and by them, gave them "fond hopes" for a space specific to their needs that they would be able to make their own. He remembers the design process as fairly "informal" where "Wickman would bring in the latest drawings and we would muck around with it say what about this." At the time of the design, participant 5 recalls that not having as much expertise in the area of accessibility, barrier-free and universal design as he did after. He mentioned that as part of the design team he and the others wanted to make sure that the user/expert who is blind could speak about the needs of

blind and visually impaired. According to him, that was really important because the other two individuals on wheelchairs has a lot of experiences with accessibility through their own personal lives and also, being part of various organizations.

When talking about his own connection with disability he mentions, "I am the father of a son with Cerebral Palsy and my wife and I, mostly my wife has been involved in Cerebral Palsy sport nationally, provincially and internationally now, so that was part of an awareness." He also adds, "I worked as a personal aid to a guy, he was quadriplegic, he lived at home and that was late 70's so I have travelled with him places where there's steps so I have that awareness long before a lot of other people."

Speaking on the automatic sensors used in the washroom the social worker says, "I always have been a big fan of that stuff, why would I have to touch something when I can just have that." He also mentions that there was issues that that were brought up during the design process regarding maintenance such as wet wheels of wheelchairs that can bring in dirt and they can't really be wiped off, which can get difficult for the floor treatment when it is an ongoing occurrence. Unfortunately, nothing could be done about it since it would have been an ongoing issue considering the climatic conditions of Edmonton. According to him, the office is "very spacious, welcoming, friendly and warm" and similar to the user/expert who is blind he feels a sense of ownership of the space due to his and the team's collaboration and contributions.

Participant 6, Executive Director & User/Expert

Participant 6 was the executive director of the Premier's Council who is another user/expert but this time for people in wheelchairs. His main duty as executive director was to "oversee the day to day operations of the council." He has Bachelor's and Master's degrees in political science from Simon Fraser University. For the last 28 years, he has specialized in the area of public policy and public administration. He mentions, that there were some key drivers for the council office to move from the ninth to the eleventh floor which included: 1) the space needed to have some unique interface with the government; 2) the space had to have enhanced accessibility for the employees; and 3) visitors to the space needed to benefit from the space in a similar way. The executive director said that for simple office renovations Alberta Infrastructure usually does not hire an architect but for this instance the needs of the employees were so specific that an architect had to be consulted.

As the executive director he wanted to create something that wasn't "box-y and sterile hospital, clinical kinds of environments". Instead he said they "wanted to showcase the ability to built welcoming and inclusive office spaces." He mentions that the space on the ninth floor had small cubicles and the hallways were very narrow. In addition, the "accessible" washroom outside of the office was the size of the "hand ball court." In addition the office simply didn't have enough room for the intended growth of the Premier's Council, which was echoed by other participants.

According to the executive director, the renovation project was a great opportunity to capitalize on creating something that would meet or

exceed the needs of the employees and clients of the Premier's Council, which included accessibility for mobility and vision impairment, bigger and more cubicles for growing number of employees, larger boardroom both for employees and visitors, and an accessible washroom inside the space.

In terms of budget the executive director said, "I don't think there was major budget issue, we weren't trying to do anything elaborate, it's not like it's filled with fancy technology or anything." He remembers the design process as being very interactive where they collectively thought through different problems in order to come up with various solutions. He mentions the rationale behind using the curved wall for the washroom was that people in wheelchairs could glide easily around the corner without having to turn sharply. According to him, the boardroom meetings with Wickman, the interior designer and some of the end-users were more frequent at the beginning of the design process than when it came to construction, the architect made himself available and accessible to answer any questions or concerns. That is, the executive director said, "we always knew how to get hold of him if we had something we wanted to add or he'd drop off diagrams off for people to have a look at and we would all kind of kicked them around."

After the renovation was completed an the office was moved to 11th floor, it became pretty obvious fairly quickly that it met all their needs and "it was a much nicer place to work in terms of just being able to get around, being able to see, being able to communicate." He compares the office to a new pair of shoes that just fit right, "and they are perfect and it's not long before you are used to them." Soon the place was carrying out tours to

demonstrate how to create inclusive welcoming spaces and stay relatively within the confines of government expectations.

While talking about disability he says, " I can't walk, I only have one arm that functions, I have decreased sensation, I have medical issues that need to managed but it's the environment that disables me." He mentions that by designing a space where the barriers are removed, it allowed for people with disabilities (and employees in this case) "to interact on a level playing field with rest of the world." The executive director further explains, "we could hold meetings on our terms. We could move and maneuver within the environment on our own terms and it wasn't limiting to anybody else coming in where the reverse is not the case. So I go to your space, if it's not adequately designed it's limiting, it's your space that limits me, not me."

Participant 7, Assistant to the Deputy Minister

Participant 7 completed his Bachelor's degree in political science and history from St. Mary's University in Halifax before he became a certified accountant in 1980. After the completion of his Bachelors he went to work for Bank of Nova Scotia for 5 years and then worked for the office of the auditor general before moving to Alberta with his family. He mentions in the interview, he had interest in accounting and financial matters and it is this interest that made him get his certification as a general accountant. After moving to Alberta, he worked for the Alberta Treasury for 10 years and then get a posting as the Director of Finance and Administration in Executive Council in Alberta. From this position he was promoted to the position Deputy Secretary of Cabinet and it is during this position he wanted to be part of the broader disability community.

He mentions, it was because of his personal connection with disability that he wanted to be involved in human services. He has a son who has disabilities and due to such connection and personal experiences with disability he got himself sent over from the position of Deputy Secretary to family and social services. Soon after he became responsible for all disability related programs and organizations and one such organization was the Premier's Council on the Status of Persons with Disabilities which came under his supervision. He was involved with the administrative matters of the council and the budget for the council operation was also under his division and supervision. He was present when the office was being renovated and mentions that he and the employees wanted to create friendly space to work in and visit for people living with disabilities. He also mentions, the difficulties associated with creating a government office space within the HSBC building included limitations in terms of options, he says "their cubicles and bathrooms had to be a certain size, you had to basically just use the ordinary bathrooms for everyone on the floor." He adds, "you couldn't design separate bathrooms or anything like that, and the floor coverings had to be of a certain quality and generally just carpeted and it just went on and on in terms of all the standards the government of Alberta had developed in order to deal with office space for government employees so we had to work very nicely with everyone."

He says, everyone came on board pretty quickly and fairly and the design process started soon. He recalls that the building also managed special parking arrangements for the user/expert in a wheelchair and on stormy snowy days, maintenance workers would make sure to clear the parking area

and the ramp so there was adequate access to the building. According to him, the design process involved coming up with the basic design parameters first and then refining the needs and wants into the given space with proper reasoning and rationale. He gave the example of the marmoleum inserts and says, "when they were talking about changing of the floor material whenever someone had to make a 90 degree, they would meet with us after they had come up with that idea and then we would say 'okay so tell us why'." He mentions the justification was necessary for budgetary framework and also for decision-making framework for the standards he has discussed earlier. He recalls that the process was altogether very iterative and they did not know how successful they space would turn out to be but at the end it "served the broader interest of the disability community very well." He says prior to the design process there were two main aspects that he wanted the new space to have and both of these were successfully incorporated.

First he wanted a space where people with disabilities could gather and feel as comfortable as possible and second he wanted the place to be a showcase for other government offices to present how barriers don't need to be there and a barrier-free space such this can be accomplished within existing resources. When speaking about Wickman, he said, " I knew his dad Percy and I knew what he was interested in and so I didn't have to be convinced that he was the right guy to do the job. There was no visible hesitation on the part of the government that [Wickman] probably was the best guy to do this work."

While talking about the feeling he got when he first entered the space after the completion of the renovation, he says "Wow! It really was…it

would take your breath away. In every aspect, you know, from the banisters along the wall so that people could go along and find the indicators that there was an office close by to the width of the doorways to the basic openness of the overall space it was just incredibly very happy place to be."

When asked about the weakness of the space he mentions there were couple things that were difficult including the user/expert who is blind's dog as not everyone was able to handle having a dog in their workspace due to allergies and also in a conventional office space it was also difficult to have the dog walked. Another one, which isn't about the design of the space includes the climatic conditions, which make it difficult for employees to get to work during winter. He says, "maybe we should have been in a mall so that individuals in wheelchairs would have less difficulty getting to work and better access to the LRT." He further adds, "it's not enough to simply say that the physical space is going to solve all the issues that relate to the broader disability community, if people with disabilities are going to work in that space then you have to take into consideration where the space is within the broader framework of the city that you operate." The last one that he speaks of is the same one participant 5 mentioned, which is the aspect of maintenance, the wheelchairs during winter brought in mud and dirt which created challenges in keeping the flooring clean. In addition, he says that although the place might not have been ideal due to climatic conditions of Edmonton it was definitely ideal for being part of hub of business and hub of politics.

Current Employees

None of the participants who were present during the Premier's Council office renovation are currently employed there. In order to understand how those who weren't present during the collaborative design process perceive the space, questionnaires were dropped off at the Council office for employees to fill in. Six employees filled in the questionnaires (see Appendix F) and their answers were compared in order to understand their lived experience in that space. All of the employees indicated that they were not disabled and that disability does not affect their working ability within the space. When asked what they like most about the space, almost all of them answered that the "openness" of the space is one of the best features. They also discussed the "happy and collaborative" feeling that generates from the open concept integrated into the space. The responses to what the weaknesses of the space are varied among the employees. It ranged from issues related to the temperature to the open cubicles causing confidentiality issues. One of the current employees mentioned how the space works for people with and without disabilities and that universal design should be used in more office spaces. Another individual mentioned how the open concept of the space can be both a strength and a weakness, when the space is quiet it's easy to focus on work but when its filled with people it can become difficult to focus in the open cubicles. All of their responses are summarized in Appendix G.

Summary

This chapter described the human actors of the design process by discussing significant backgrounds, roles in the Premier's Council office and

their positions related to disability. The participants in this study are illustrated through paraphrases and quotes from their responses to the interview. The current employees of the Council office were also given the opportunity to express their views on the office design and their responses are also discussed in this chapter. This chapter provided essential background information about the human-actors in order to better explore how they characterize disability within the design process. The following chapter brings together the data from chapters 4 and 5 to discuss the core issues and themes resulting from the data analysis.

CHAPTER 6 DISCUSSION

Introduction

As outlined through the previous chapters the design of the Premiers Council office is a highly complex network of human and non-human actors. This chapter aims to acknowledge and describe the main themes that emerged from the analysis of the collected data of this research. This chapter begins with themes such as the architect and moves into agency, talk around disability and emotional resonance. It continues with the theme about the material and immaterial, followed by time and budget and ends with the designed artifacts created for the space.

The objective of this chapter is to begin to 'read' how disability is characterized within the project by looking at references and subsequent codes of disability through the human and non-human actors. To understand how participants characterize and understand disability, human experiences, anecdotes, motivations are analyzed while non-human things are analyzed through positioning within the project and talk around those things. To lead towards an understanding of how people and things are coded in disability attention is paid to the contextualized roles that they played within the design process. Only through this network of interconnections it is possible to properly understand the prominent themes relating to disability within the Premier's Council office space

The Architect

Before moving onto the prominent themes of this research it is important to discuss the central participant of the project who acted as the main 'translator' of material into culture, the architect Ron Wickman. To

begin, Wickman used leadership skills and advanced ways of thinking when considering disability within the project. As mentioned earlier he was selected for the project because of his prior experiences of designing for disability, yet to date there hasn't been any research on how he works 'with' disability.

Throughout the design process of the Premier's Council Wickman included people with different backgrounds, especially when they could provide information about things he did not have much experience in. For example, he worked very closely with a user/expert who is blind because he had not done so before. Such inclusion and collaboration created opportunities to see different solutions during the design of the renovation. The type of end-user interaction that happened during the design process of this project is very unlike of other projects that Wickman did for Alberta Infrastructure and he says, "often when I do a job for Alberta Infrastructure I don't necessarily meet with the end-user. I am often just dealing with the project manager and we just make it work." In this case he met with the project manager and also with the employees, the end-users every couple of weeks for three to four months making it a much more collaborative experience for everyone. Evidenced by the interviews with Wickman's team members on the project, each person had ample opportunity to engage and contribute to the project. During the design he provided his design expertise and was also very open to ideas from the employees of the office in order to collaborate in ways that were creative resulting in a design that was aimed at benefiting the employees and also the visitors to the office. Wickman describes the way he works, "I really just listen, really hard to what they are

saying and try to accommodate the needs they are telling me. At the same time, I guess I would use my previous experiences to let them know this is what I have done in this situation in another project". One of the user/experts described Wickman's role in the design process as being a "translator" and says, "his role was to translate our thoughts and ideas into a design". She adds, "he understood that he [Wickman] really was quite insignificant, he was there to take our ideas and put them into a design". Most of the team members were aware of Wickman's more human-centered approach to barrier-free design prior to the renovation and some of them had worked with him earlier. Even so, the design team shared a level of comfort, which allowed them to more readily explore their needs, wants and expectations during the design process for the PC office.

Wickman's personal experiences of growing up with a father in wheelchair influences his skills and abilities in barrier-free architecture, while at the same time this background allows him to be more free when working with people who have disabilities. For example, Wickman has a way of treating each person with dignity and respect. It seems as though such intimate experiences with disability has allowed him to develop an empathy or intuitive ability to identify with others. In Wickman's words he describes this ability, "every time I do a job for somebody with a disability they get added onto my collection of disabilities so I start to use my experiences and my experiences with other projects starts to influence every design after that."

For the Premier's Council project he had to make sure that the outcome went beyond barrier-free design where the space considered not

only issues of physical access but also ones that focused on less visual aspects such as touch and tactility. Due to his prior experiences with accessibility design, he was very well aware of mobility impairment but this was the first time where he worked with someone who is blind. Wickman and the user/expert with vision loss spent "an hour or two just walking around" the University of Alberta campus to understand the point of view of blindness and navigation, lived experience and working with a dog guide.

During the interview it became quite apparent that over the years, he has also developed a sense of altruism and activism through his works for people with disabilities. He has established himself as an "out of the box architect", describes one of the participants of Wickman. Wickman says, "I am not designing just for specific people, I am designing for many people". He also adds, "my world of end-users is different than most because I have so much more experience working around people with disabilities". One of the jobs of designers is to balance the needs, wants and expectations of the prominent stakeholders during the design process, of which Wickman seems to do a good job. For the Premier's Council he was juggling Alberta Infrastructure, end-users with disabilities, the employees of the Premier's Council and potential visitors towards a satisfying design outcome. Wickman balanced the needs of the employees with mobility and vision impairments, made sure the project did not go over-budget, selected durable materials, acted in leadership capacity to guide a diverse team towards a solution. Wickman says, "it's not just making sure it's physically accessible but it's also going to work from every aspects, from the secretary to the cleaning stuff so all of these things, what I try to do is balance all that".

All this being stated, it is interesting to consider how Wickman characterizes disability within the Premier's Council project. He consistently advocates for people with disabilities to have access to spaces and particularly washrooms. This role of advocacy reveals a man who uses the medical model of disability to determine door widths and turning radiuses, yet at the same time he works in the social model when he considers how to bring people together and how to assist them to be as independent as possible. It seems as though, as a consequence of his father, Wickman assumes that people with disabilities are just like everyone else even though they may require a few additional things to assist them in daily living.

Material & Immaterial Things

As mentioned in earlier sections, artifacts during the design process are a part of and have prominent affect on the design outcome. These non-human actors or things include those that are very material such as the tactile model, drawings, construction materials and design samples. Along with those that more immaterial such as timeline, budget, guidelines and codes. They are defined as material and immaterial (Devlieger & Strickfaden, 2012) because some of the things are obviously material in their characteristics since they are relatively concrete whereas some of things are more fluid in their characteristic because they hold a great deal of ambiguity (such as codes, guidelines, design standards, timeline, budget) because they are contextualized heavily by individual backgrounds and up for a great deal of interpretation. Each of these objects is coded in disability in different ways and have different levels of agency.

The more material things are coded in disability to different degrees relative to their materiality or what they are. For example, the tactile model of the office floor plan is coded differently in disability than the design samples. The tactile model was created to aid in communication with the user/expert who is blind, which is about connecting people and flattening experience hierarchies[5] (social model of disability). The design samples are more ambiguous towards disability because they are coded by the people who combines them. Some materials turn out to be highly coded in disability (e.g., the marmoleum square) whereas others remain quite neutral (e.g., the cubical walls). The drafts and drawings that are created by the designers are, again, not particularly coded in disability by their nature. That is the coding of disability is in how they are created to a great extent. In addition, drafts and drawings are actually coded in 'design' because they are a means of communication that are used within the field and not always understood by laypeople. Models are coded in design, yet it is atypical to use a model in a tactile way shifting the coding to be more about disability. The drawings are coded in disability insofar as the designs themselves are aimed at representing design decisions that support different ways of experiencing the world. At the same time, the drawings can simultaneously include and exclude disability because they are inherently visual by nature. Therefore, sketches and drawings have a dualistic tension by allowing certain people to

[5] flattening experience hierarchies is a way of developing more symmetrical social relationships between all parties who are involved in a given activity. That is, there is no specific leader in the group, but instead people work together collaboratively by aiming to develop symmetrical interactions, each individual is considered to have different experiences that are each valued (there is no one above another, for example, higher education, better functioning legs, etc.).

be involved in discussions (social model of disability) and excluding others all together.

For the more ambiguous immaterial things, the coding in disability is much more complex. It is known codes and guidelines act as the acceptable standards a building or an office should have in order to remove barriers from an individual with disability and give them access to the buildings, goods or services. Codes and guidelines are measurements and calculations based on anthropometrics and assume that having wide doors, wide hallways and ramps of certain height and width in a building would be able to aid in 'fixing' disability (medical model of disability). Yet, it is actually much more complicated than just that because first off the guidelines are quite exclusive in their inclusion of people with disabilities. For example as discussed by one of the user/experts, the building only has one ramp but many doors and during a fire alarm people without mobility impairments have more than one choice to leave the building while it is quite the opposite for those with mobility impairments.

The most significant thing with this is that no matter how many codes, guidelines and standards there are, it is still people who have to interpret these. And with the need for human interpretation there is immense variability in the outcomes because each person making decisions has a different sociocultural background (that involve disability to greater or lesser degrees or not at all). Therefore, even though the building follows building codes, when it comes to entry and exit, it only meets minimal standards, which means it is not particularly sophisticated when it comes to removing barriers.

When considering other more immaterial things, time and budget are also variable. For these two categories, it seems as though disability coding was rather high because there seemed to be the perception that to do a project that really highlights features that are well designed for people with different disabilities, there needs to be flexibility with time and budget. At the same time, it is difficult to know whether this flexibility is the result of wanting to care for people with disabilities (charity model) or if it was to promote disability (social model).

Shifting Agency

One of the main objectives in this thesis is to consider the agency of both human and non-human actors. In many typical studies on design, there is a focus on people and things but they do not necessarily consider the power that each of these has. Interestingly, power is not something that is static. Rather, it has a fluidity or ability to shift throughout time (Barad, 2003). In addition, agency in human and non-human actors, as argued by Kirchhoff (2009), only arises in relation to other factors such as time, which means it is not fixed rather its fluid and shifts throughout the design process.

This aspect of the fluidity of agency is apparent in this study. For example, the people/human agents had stronger voices during the beginning of the design process. The design team—architect, interior designer, user/experts, project manager and others—spent time talking, listening and synthesizing generalizable information about the needs, wants and expectations of people with disabilities. However, once the design process had moved along, the codes, guidelines and standards took over resulting in these having more agency. This is because the final design needs to abide by

building codes resulting in these materials having a great deal of power. Interestingly, the codes, guidelines and standards may or may not be up to date since these kinds of documents are often revised once every 3-5 years. In addition, codes, guidelines and standards typically take multiple years to prepare and are often based on the trials and errors of the past, which means it is virtually impossible to embed cutting edge concepts into these documents.

Another important shift in agency is between the architect and the user/expert who is visually impaired. Wickman was well aware of barrier-free designs including wheelchair accessibility, but as previously mentioned this was the first time he working with someone who is blind. Initially Wickman had more agency as an architect; however, shortly into the design process the user/expert had more agency as a result of her personal experiences. Even so, once the design development phase was over and construction started, agency shifted once again from the designers, user/experts, codes and guidelines to the contractor and builders. It was the contractor and builders who had the agency to implement and complete the office space as it was designed. Based on discussions with the participants, there is evidence of this power shift when the contractor and builders pushed back against the proposed design. Wickman had designed the curved wall in the reception with a pony wall that was low in height in one spot and got higher in another. The contractor didn't think he could complete the wall as specified and suggested that it get changed and consequently the wall underwent some modifications.

Finally, throughout the whole design process, timeline and budget also had prominent agency since designers always had to keep the designs within budget and had to ensure they were able to finish the office within given time to avoid any extra cost.

These constant shifts in agency create a complex network of relationship between human and non-human actors within the design process for the renovation of the Premier's Council office. Consequently, the way that disability is characterized also has fluidity and shifts within the design process. That is, the initial shift is between human and non-human agents. What is interesting is that the first phases of the design process work very strongly within the social model of disability and then it shifts to the medical model when codes and standards have greater agency. It is also interesting that as an architect, Wickman is so easily able to relinquish his agency to a person with disabilities. This giving voice to disability illustrates how Wickman is an advocate and how again, the social model of disability is emphasized. Finally, when timeline and budget are added as agents, disability is pushed to the background. At the same time, during the design process Wickman argued for the need to produce a "nice project for people with disabilities", which for all intensive purposes bring the charity model into the mix.

Talk around Disability

During the interviews, discussions and questionnaires to reconstruct the design process of the Premier's Council each participant was prompted to talk about disability. It is interesting to note how each participant discussed disability, albeit in very different ways. That is, different participants

described disabilities in different ways, some used their own personal experiences with mobility or vision impairments while other used experiences they had with a family member or friend. This talk around disability exposes the perception of disability, illustrating a real fluidity between the models of disability.

These perceptions on disability are explored through the different participants. To begin, Wickman describes disability through the experiences with his father and also through the clients he worked with over the years. The terms he used—wheelchair, cane, ramp, wide hallways, codes, dogs—are highly coded in disability and deeply connected to design features. Through codes, Wickman is defaulting to the medical model. He has a tendency to focus on the medical conditions of people with disabilities but is moving into attempting to understand the social aspects of disability (illustrated through his walk with the user/expert who is blind). In addition, Wickman seems to have a sense of altruism and activism that runs throughout his projects. He wishes to help people to access buildings and be part of the world, which also relates to the social model. Wickman's objective in his work is to create barrier-free spaces for inclusion of people with disabilities and everyone else.

When the interior designer was asked about her experience with disability she mentioned that even though she didn't have any personal experiences related to disability she definitely understands the hardship of wheelchair and accessibility simply by relating it to her own experiences of when she had to use strollers for her children. She also admits she didn't have extensive design experiences with barrier-free design prior to the

Premier's Council office and but has learnt a lot from the project and used the lessons and experiences for the projects she has done since then. One of the interesting word choices she makes when describing people with disabilities in design process is that they are "vulnerable". According to her, she feels people with disabilities have to open up to complete strangers (in this case designers) and discuss their personal needs in details, which creates a sense of vulnerability. This is interesting comparing to Wickman, who more often than others spends a great deal of time with his clients and end-users (often people with disabilities) to get to know them more. When he does this he acquires a sense of empathy with them along with empowering them to be vulnerable to speak about the reality of their lives. During the Premier's Council project, the interior designer learned some of Wickman's ways of working. It is most interesting, however, that the interior designer characterizes people with disabilities as being vulnerable because it shows that she is not thinking about disability as a weakness but categorizing it as something inherent to all people. Consequently, the interior designer's view of disability is rather sophisticated and lies within the social model.

The user/expert with complete vision loss describes disability through her own experiences. With this project one of her aims was to ensure the office did not look or feel like an institution, which can be the case when designers strictly abide by the codes and do no use creativity and imagination in the process. Consequently stiff interpretation of the codes can create a space that looks and feels like an institution such as a hospital. The user/expert mentions how codes are the minimum acceptable standards and architects should do "whatever they can to go out and be original". She

further adds, “we spend so much time making sure that the place is accessible that we often don’t think about it. Let’s do something different just because was can!” When she describes being blind and losing sight by gradual deterioration she is referring to the medical model but when she talks about her urgency to create a space that does not have an “institutional feel” and goes beyond the requirements of the code she is referring to the social model where she considers that the attitudes towards disability are changing.

The project manager is employed with Alberta Infrastructure and his experience with disability is very systematic. That is, his role as a project manager necessitates him to place codes, guidelines, standards, timeline and budget at the forefront. The project manager did not have any personal connection with disability, yet seemed to understand the concept through the medical model where he is constantly updated with available materials and literature on codes and guidelines as part of his job. Therefore, the project manager’s characterization of disability is relatively straightforward, yet not particularly up to date.

The employee, participant 5, of the Premier’s Council who does social work talks about his experiences with disability through his personal and work experiences. He talked about his son who has Cerebral Palsy, which has made him very aware of the needs of people with disabilities. In addition, from working at the Premier’s Council and being around people with different impairments he has broadened his knowledge. The participant mentions that he wasn’t aware of the difference between barrier-free and universal design until his colleague pointed it out to him with an example of an automatic door with an electric eye that opens for everyone (an example

of universal design) and a door that opens when the button is pushed (an example of accessible design). Before starting a family he has also worked with a gentleman with Cerebral Palsy very closely and had noticed the challenges of navigation that individual had to face in his daily life. Although participant 5 mostly describes disability through medical terms—such as Cerebral Palsy, incomplete quadriplegic, blind, visually impaired—he was an advocate for including more community members to contribution towards the design process of the Premier's Council office. Consequently, his urgency to include more community members within the space reflect that of a social model.

When the user/expert who is in a wheelchair was asked to talk about disability, he says although he has mobility impairments it's the environment that disables him. This is a very clear description that relates to the social model of disability. He was reluctant to describe his physical state in terms of a medical condition, which is also an indicator of the social model. It is clear that he rejects the medical model and focused on the barriers in design and societal attitudes instead.

The final participant, who was the Assistant to the Deputy Minister at the time of the design renovation, has a similar background to participant 5, by explaining his experiences of disability as being connected to his son with a disability and the people he has engaged with at work. In his interview he says that he wanted to be part of the broader disability community due to his own personal experiences, which illustrates a sense of altruism and activism (similar to Wickman). At the same time, he seems to predominantly work

within the social model of disability, which is exemplified through his engagement with the people he works with.

Time & Budget

It is well known that designers have to balance creativity, the various stakeholders (funders, end-users, etc.), available materials and the context of the building with time and budget. Time and budget played an important role in the design of the PC office space in many different ways. Although most of the participants agreed the budget was fairly generous, in many instances design features needed to be modified by the designers due budget. Wickman mentions a need to change the transition strips for the marmoleum squares because of time and budget. During a walkthrough of the office with Wickman, he also talks about the acoustics of the space, which he feels could have been refined. Wickman says that although it wasn't a huge requirement, for the purpose of the space he would have made the acoustics better if there was an available budget for it. The interior designer also expressed a similar challenge when she talked about wanting to create a space with features that the end-users could feel liberated and independent. Yet, in reality the interior designer felt restricted due to the government standards and available materials within a given budget. In addition, the user/expert who is blind mentioned that she felt it was important to include a strobe light connected to the fire alarm for people who are deaf. But nothing came of this concept due to budgetary restrictions and restrictions on the lease.

Wickman mentioned an important time constraint when he was talking about how meeting clients frequently like he does for his projects can be time consuming and he can understand why other designers might prefer

to not meet with the clients. He says, “I like to meet frequently with the clients, it’s time consuming and I think that’s why lot of designers don’t like to do that because you just offer more opportunities for more changes and all this sort of stuff but I really find it a powerful way to be able to design so I will meet with clients every two week”.

Although according to the designers it is ideal to have more time and a larger budget while designing, other stakeholders involved also have their requirements including that the employees want to move to their new space as soon as possible in order carry out their daily functions more effectively and efficiently. Also, all government office renovations are allocated a certain budget and it’s the project manager’s duty to make sure the renovation process doesn’t go over budget.

Therefore, when it comes to time and budget, there is a great to deal to balance. So often, the excuse of time and budget is used to avoid designing spaces for people with disabilities. When it comes to characterizing disability through this theme, it is clear that the reality of a project is always being balanced with creative solutions. In terms of time and budget, there is no clear connection to the charity, medical or social models of disability unless the ‘padded’ budget is taken into account. That is, Wickman and other participants mentioned at the onset of this research that the budget was flexible because the government wanted to make an office that was a showcase for accessible design. When this is taken into account, it is clear that the charity model of disability is at play yet the reality of designing where certain features were discarded because they cost too much money illustrates that there are limits to charity.

Designed Artifacts

It is important to bring the final design, the Premier's Council office space, into account when considering how disability is characterized in the design process. The space as a whole and the designed artifacts of the space were created in such a way that there was an attempt not to code them too heavily in disability. That is, one of the goals of the space was to create something that had the look and feel of a modern office space and could be used by everyone. Beginning at the exterior of the building, the ramp in front of the building represents access to the building, yet a ramp also represents mobility impairment and society's viewpoint of disability. In terms of coding, a ramp, wide doors and wide hallways are relatively high codes of disability because these are typical symbols of accessibility.

Inside the office space the design team worked on moving away from the highly codes of disability inside the office by creating solutions that did not scream disability. The marmoleum squares on the floor is a detail that doesn't really look like something related to disability unless the person has knowledge of how visually impaired people need to navigate a space. Wickman said, "I would argue that any new visitor to that space would have no idea why the marmoleum squares are there. They would think it's kind of interesting and it's kind of weird". The handrails with notches on them in front of the cubicles were created as an orientation aid. They act as a subtle indication for a person who is visually impaired about where the cubicle entrances are, yet may not even be noticed as anything beyond a decorative feature to someone who is not disabled. In addition, the curved walls within

the space rather than sharp corners, allow for better flow of mobility, again a feature that does not look or feel like disability.

One item that has a slightly higher coding in disability is the hand bars and the spacious feel of the washroom. Most people recognize hand bars as being related to disability. Yet, they are much more than that since the washroom also needs the proper measurements and calculations to make it truly accessible. The bathroom also features automatic dispensers, which has become part of the washroom experience and benefits everyone. These features are not really coded in disability.

Finally, the tactile features of the microwave, toaster oven and the dishwasher are not coded in disability because these are standardized products available on the market for everyone to use. Again, only people who know a great deal about disability would possibly recognize the appliances as being special in any way.

It is interesting that the design feature that created specifically for people with disabilities in the PC office space are on the most part not highly coded in disability. What this means is that the designed office is attempting to work predominantly within the social model even though it has to adhere to the medical model through building codes.

Emotional Resonance

The overall feel of the space after it was renovated as described by the participants due to the design features include statements like it's: welcoming, friendly, warm, inviting, exciting, upbeat, fun, and comfortable. The people involved in the design process and those who work in the space currently indicated that the space has a real emotional resonance, mainly as

the result of it supporting independence and people with disabilities working well. There were no critical comments about the space beyond those of the architect and interior designer who, in general were reflecting in order to create an even better design in the future.

Most of the employees of the space also felt a sense of empowerment for being involved in the design process and also for being able to share their thoughts and those being considered and incorporated by the designer into the space. They appreciated the space much more and felt a sense of ownership of the space that they been part of the process. The user/expert with vision loss left her position at the PC a year ago and works for a different organization related to disability. She mentioned how much she learned from being involved in the design of the office space and indicated that she applies that knowledge within her new job. She also mentioned that she learned a great deal about various disabilities other than her own during the process. She was not the only participant in the renovation that felt very positive about the experience. In a general sense, being involved in the project provided each participant with feelings of empathy towards others, especially those with different disabilities. Other participants expressed similar views about learning of different disabilities and different requirements and needs also broadened their knowledge and awareness.

The emotional resonance that the design process and the design of the space evoked could be an indicator that the overall feeling of being engaged in the project aided in shifting the participants perceptions of disability. That is, the apparent shift between the medical and social models shows that not all of the participants were initially thinking about disability as a social issue.

Yet, when the design team was asked to reflect on the project they each showed transformative thinking about disability.

Motivation

It is clear that the focus for each person involved in the Premier's Council office renovation was to somehow promote disability. Each person's motivation for being involved in the project and work relating to disability was linked to their background and was slightly different just as their ideas and characterization of disability are also different.

Wickman's main motivation for working with disability and subsequently on this project is predominantly the result of his experiences with his father being in a wheelchair. He has spent his career contributing to the community through architecture but certainly works as an advocate for disability and sometimes even an activist. His interests are economic and altruistic.

The interior designer (participant 2) sees being involved in projects that relate to disability more as a job that she wants to get right. She has no vested interest in disability beyond her associations with Wickman. Even so, the interior designer is conscientious and seems interested in supporting people towards having spaces that are beautiful and well-designed. Her motivation is primarily for economics.

As a person with a disability, the user/expert (participant 3) who is blind has a personal interest in disability. Although her personal knowledge base is around visual impairment she stretches this to begin to understand mobility issues for those in wheelchairs including accessibility issues. Her interests are personal and social.

The project manager (participant 4) is the one individual whose engagement with disability is defined specifically through his job and perhaps more limited. He keeps himself informed about the codes and guidelines on disability in order to do his job well. His motivation is purely economics.

Participant 5, the social worker has a son who has a disability and he has learned about disability through colleagues. He has been personally been touched by disability by being a caregiver, which gives him the empathy to understand the position of others. His interest in disability is economics and social.

The user/expert (participant 6) in a wheelchair has a personal interest in disability and considers the physical environment (inside and outside spaces) to be the biggest obstacle that prevents people with mobility impairments from living a full like. His interests are personal and social since he is an activist in the world of disability.

The last participant (participant 7) also has a son with a disability who has been motivated to help others because of his experiences. His motivation for being involved in disability is economic and altruistic.

By identifying the motivation of each of our participants, we gain a deeper understanding of how disability is characterized through this project. The team member's motivation again reveals a complex picture where the charity, medical and social models are at play. It is interesting to note that the majority of the participants are working and living through the charity (altruism) and social models.

Summary

Overall, all the human actors who were part of the collaborative team to renovate the Premier's Council office space characterized disability through each of the models of disability. The predominant models were the medical and social models, with a clear shift from medical to social model and back again at different stages of the design process. While describing their viewpoints on disability they show varied ways of thinking about disability yet come to a place where disability is predominantly considered a societal issue. The participants' viewpoints on disability show that they predominantly adhere to the medical model; however, there seems to be an urge to move towards the social model for the betterment and inclusion of people with disabilities. The characterization of disability through the non-human actors reveals an interesting story about how disability is navigated through objects. There were significant variations in coding of disability in the non-human actors of the design process for the PC. Further, the shifts of viewpoints and perceptions illustrate the complexity of how disability is characterized including how interconnected concepts and issues are. The findings of this research also suggest how disability is not always situated in bodies alone (Law, 1992) rather it is generated in these intricate interconnected networks that 'pass through and ramify both within and beyond the body'.

CHAPTER 7 CONCLUSION

The purpose of this research was to investigate how disability is characterized within design process through the complex networks and interactions of human and non-human actors. For this investigation, the Premier's Council's office renovation was studied as a retrospective case to understand how disability within design process is considered, described and embedded into an artifact. The Premier's Council office was the first points of interest, followed by the people involved in the design process and other non-human actors that were identified as significant to the process.

The PC office renovation was completed in 2005 with architect Ron Wickman leading a team that included an interior designer, a project manager, three user/experts along with three other employees of the office. Seven out of nine team members were available for interviews. Their responses were transcribed in denaturalized versions in order to understand the different networks that existed within the whole process from the inception of ideas through to the completed office renovation.

According to the existing literature on disability within design process, people with disabilities are sometimes excluded from the design process due to challenges such as communication, transportation, lack of budget, and time constraints of a project. Products are often designed with the assumption that only normalized people with two working hands, eyes, legs and a coherent mind, would use them. Such assumption negates the experiences of people with disabilities, who in fact could contribute to more innovative design results. Self-centralized designing (where the designer is at the center and doesn't really consider others in the design process) seems to

prevail in designing for people with disabilities, whereas human-centred designing (where people are included in the design process to gain better insights into lived experience in order to design better products) is commonly used in design in general, so there is no reason why more people with disabilities couldn't be involved more often in the process. Even so, to work with people with disabilities is a large time commitment, which might be a barrier for designers. Yet, when user/experts are involved in a project like the renovation of the Premier's Council there is a great deal of insight to gain about exclusion through design and designing for inclusion by acknowledging the lived experiences of a variety of people. Further, such exclusivity in designed things and designing leads to further social stigma, degradation and ultimately disempowerment and low-self esteem for people with disabilities. The retrospective case study herein illustrates what may be considered as one of the best-case examples of designing for and with disability where people with disabilities were involved from the beginning of the design process until design implementation. The designers and the end-users collaborated to create a space with unique architectural features that works for both people with and without disabilities. During and following the design process, the participants felt empowered and gained a sense of ownership by working as a team on the project.

The research herein reveals a design process that is not so different from others in that it is highly complex and highly varied when it comes to working towards a design outcome. In the case of the Premier's Council office space, many design ideas were realized because these were placed as highly important in terms of fulfilling the requirements of the end-users (e.g.,

bathroom, navigational elements, smooth floor surface transitions, reasonably sized access points) whereas other design ideas were discarded due to practicality, guidelines or budget (e.g., strobe light for the fire alarm). In addition, upon completion of the design, there were several designs that needed to be modified (e.g., glass doors), which is often the case when it comes to a complex design with specific yet varied end-users.

Unpacking the design process of the Premier's Council office renovation provides many significant insights into the values of society, particularly how people think about disability. The most interesting insight discovered about perceptions of disability through this research is that the religious, charity, medical and social models are entwined and virtually inseparable. That is, the current view on disability is highly complex and very challenging to characterize simply. This is likely due to the necessity of the design of an office space to fulfill specific physical needs (most suited to the medical model) while supporting individual and social needs (most suited to the social model). It is also interesting to note that in this research the user/experts with disabilities characterized disability in various ways, which also blend the models of disability. This is, again, due to the complexity of societal expectations around the capabilities and needs of people with disability. Therefore, it is natural for people with disabilities to reflect back the values that are being thrown at them by other people in general, while at the same time there is a drive in people with disabilities to be advocates for themselves to improve their situations. This duality of reflecting the common values of society coupled with striving to change them is evidenced through

how disability is characterized within the design process of the Premier's Council office space.

This study on the PC office space is a good example of designed (material) features of a more inclusive space that reflect societal values (culture) that are readable through the object (office) and people. In this way, the research herein brings together the material and cultural towards a more holistic exploration into design and disability.

Response to Research Questions & Objectives

The perspectives of material culture and human ecology coupled with actor network theory and disability models are used in the study herein to explore design and disability. Material culture drives the overall study by helping to understand the meanings embedded in the non-human actors of this process while human ecology provides foundation to consider looking at design process more holistically. Actor network theory helps to understand the relationships, interactions and agency between the human and non-human actors within the project. The four models of disability—religious, charity, medical and social—are also utilized in the study to understand the viewpoints of the participants regarding disability.

After the data was collected and transcribed it was analyzed for emergent themes. Participants had different and interesting way of describing disability that showed the fluidity in the disability models and made it evident that there is no strict line that divides the models, rather the lines are quite blurred between and within each model. In addition, there were shifts in agency between the human and non-human actors throughout the process. Through these emergent themes it was obvious how complex the networks of

human and non-human actors are. These shifts in agencies and fluidity in disability models contribute immensely to the complexity of design, designing and design process.

It was found that the most influential actors with higher agency in the network of human and non-human actors were non-human actors, especially codes and guidelines as they were extensively used during the renovation of the office. Other highly influential actors were the participants who contributed to the design process with their lived experiences of disability. The architect also had higher agency due to his knowledge, experience and expertise in the field of disability and accessible design. His empathic way of designing made it a collaborative, comfortable and unique process for everyone involved. Each of the participants had different viewpoints of disability due to their own personal experiences and sociocultural background. Their responses undulated from medical to social models of disability where they use the medical model to describe the language of disability and tended to express their emotions regarding disability through the social model.

Due to the different personal experiences and sociocultural backgrounds of each participant, unique features were incorporated into the space that had low explicit coding of disability. These features included the marmoleum squares created for those with vision impairments in order to help them with navigation in the space; curve walls for those on wheelchairs promoting fluidity in navigation; notches in handrails for guidance and support; wide hallways and open space concept in order to create a warm, friendly, welcoming space. It is clear that the research accomplished through

this study on the Premier's Council office space begins to respond to the research questions and objectives; however, like with any research there are possibilities for future research in order to continue exploring disability within the design process.

Recommendations

In accordance with the findings of this study there are few recommendations directed at design educators, designers and design researchers. First of all, as implied in chapter 2, designers develop self-centralization during their design education in various institutions; therefore, design educators can develop courses where empathic design is emphasized. Such emphasis on human-centred design rather than self-centred design would help designers create empathic products for others. For designers, it is important for to include end-users during the design process, especially when designing for people with disabilities since such inclusion allow a superfluity of evidence and experience based suggestions producing an aesthetic and effective space. For design researchers, it is helpful to familiarize with the language and elements of design in order to better understand the design process, especially how designers communicate among themselves and also with other stakeholders.

Future Research

There are several strategies recommended for future work that looks into further exploring how disability is characterized in the design process. Future research is proposed through the approach, methods, number of case studies and types of objects studied.

First, the perspectives of this research, of material culture and human ecology along with the use of actor network theory and the disability models all provide a unique perspective that is worthy of further study. This way of looking at design highlights the complexity of the design process in ways that have not been commonly examined. In addition, other approaches such as involving a variety of team members with different inside-outside perspectives including someone with a disability could shed some new light on the research questions.

When it comes to methodology it is suggested to use two tracks, one that involves a broader range of mixed methods for retrospective studies and one that is ethnographic for real time studies. For the retrospective studies, in order to capture more of the design process, observation combined with interviewing could be used to track the designers', clients' and end-users stories. At the times of observations, still photography (tracking sketching and tangible outcomes during process) and video could capture the enacted aspects of designing (tracking interactions and how designers are engaging with the clients). This methodology would combine the perceptions of how the design process is actually unfolding with how it is talked about providing a more full view for the retrospective case studies. For the real time studies continuing to utilize qualitative ethnographic-type research methods (Wolcott, 1999) would allow researcher/s to look at designing in-situ. Following designers while they are a creating a project from start to finish allows researchers to make design stories more explicit and to capture more of the project without having to rely on the memories of the participants to come into play.

Following the findings of this project the researcher acknowledges that further research is needed for comparing and contrasting multiple case studies (Yin, 2009). Multiple case studies would allow a better understanding into design and disability and allows researchers to find and compare generalization of embedded ideas within their findings (Burton, 2000). Although each case study is highly complex and time consuming to put together, according to researchers it is much more credible to have more than a single case study (ibid).

Finally, in future research it would be useful to do research into different objects that are designed for and preferably with disability. Different objects, such as those highly coded in disability (e.g., wheelchairs, artificial limbs, bathtubs) or those with little coding in disability would be interesting to explore. By studying the design process of things other than an interior space, other points of comparison could be made to better understand how disability is characterized in the design process.

Implications

The implications of the research for this thesis contribute generally to the fields of material culture and design studies. On a secondary level, it also has the potential to contribute to disability studies. The research herein takes understandings of disability within the design process further than is currently available through other research, as evidence through the literature review. The findings suggest that working with people who have disabilities during design process can aid in creating a unique and welcoming space but also empower those with disabilities as user/experts providing a sense of ownership of a given design. Further, the design process used by Wickman

in the design of the Premier's Council office space as illustrated in this thesis, along with some examples of inclusive design can aid designers towards different processes and outcomes. The design process has been discussed as complex throughout the study and in so doing the research begun to identify over arching themes such as hierarchy, agency, fluidity and to acknowledge the interplay between human and non-human agents. Consequentially, such in-depth understanding of the design process is beneficial for architects, designers, design educators and design researchers.

Summary

This research, a retrospective case study on the Premier's Council office renovation, suggests that characterizing disability within design process is very dynamic and complex. It is argued here that disability is not just situated within the bodies of people alone instead disability is a complex networks of human and non-human actors that meld information towards a material form. The collaborative design process explored here supports and enables designers to be more empathetic while also allowing people with disabilities to feel empowered through their contribution to design. The work in this thesis contributes to existing literature on design process by further explaining it's complexity while simultaneously revealing how the concept of disability sneaks into and is explicitly embedded into a final design. The implications of these findings are most significant specifically for the design community but also have the potential to empower people with disabilities.

In closing, disability is a sociocultural phenomenon that designers need to take into account while they are designing objects, especially those that are meant to appeal to and support a broad range of end-users. So far,

design scholars have only begun to approach issues around disability, yet other social phenomena such as sustainability have gained a great deal of attention. This thesis is an attempt to consider disability as a rising sociocultural issue that is significant to the future of design. In this way, it is hoped that the research herein is merely the beginnings towards understanding the complex relationship between design and disability, the design process and disability and using more human-centred approaches when designing.

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APPENDICES

Appendix A Interview Schedule (Designer)

INTRODUCTION

We are interested in your experiences related to the design of (insert artefact name).

ACTORS

Can you describe to me how this project got started?
How did you become involved in this project?
How would you describe your role in the project?
What was your firm's role within the project?
Who else from your firm was involved and can you describe their roles?
How did these people come to be involved in those specific roles?
Can you tell me who else was involved in the project and describe their roles?
Who did you perceive as your client/customer?
Is this different than user?

USER INVOLVEMENT

How do you see the user during the design process?
Which (user/s) do you have in mind while designing?
In what ways is the user present during the design process? Elaborate.
Is there an involvement of the user(s) during the design process?
How do you think these users experience space?
How would you like to do this ideally?

DESIGN ASPECTS

What do you consider the strengths/weaknesses of the design?
What design principles did you embody in this building?
Are there different principles for different parts of the facility?
What questions are you asking yourself when you are designing?
What kind of experiences are you looking for?
- What 'feel', what feelings did you want to invoke?
- How did you do that?
- What kinds and specific experiences? /Why these?
- How does this project work in terms of the senses?

Where there specific principles that you wanted to be present in this building?

DESIGN PROCESS

Can you describe the design process to me?
Do you draw upon your own personal experience [which?] while designing?
Do you use your own bodily experience in designing?
How did you see the user during the design process? / Who (user) do you have in mind while designing?
In what ways was the (hypothetical) user present during the design process?
Could you elaborate on these different ways of representation?
Was there an involvement of user groups during the design process?

How do you think these users experience space?
How would you like to do this ideally?

DISABILITY

How & where did you get information about disability?

Did the factor of disability affect the process?
If so; how?
If not; why?
How far where you able to go into the issue of disability?
How are these translated into details and/or how people interact (with the space)?

Did the factor disability play a role? If yes, what was the role? How did this influence or play out in the design process?
Was it a central role, or rather peripheral?
Was it a challenge or a burden?
In what way did it play a role?
If not, why [justifications]?

DEBRIEFING/CLOSING

What are your reflections on the building now?

What do you consider particular strengths/weaknesses of the building?

Do you think of this building/design (or aspects of this building/design) as being innovative?

What experiences did you take from this design? Any influence on later commissions/ (specific type sof artifact) designs?
Other influences on your design process?
Is there anything else that we did not ask you about that you would like to talk about now?

Appendix B Interview Schedule (People with disabilities)

INTRODUCTION

We are interested in your experiences related to the design of (insert artefact name).
Would you be willing to give me a tour of the (artefact) and point out significant features?

ACTORS

Can you describe to me how this project got started?
Who was involved in the project?
What were the roles of the people in the project?
How did these people come to take on those specific roles?
How would you describe your relationship with these different people?

USER INVOLVEMENT OR DESIGN PROCESS

Can you describe the process of designing this (artifact) to me for your perspective?
Were you involved in the process? How?
What things did you want to see in the (artifact)?
Were they incorporated? Why (not)?
Did you ever meet with (designer/architect/others)? How often?
How did you communicate your needs with (name of designer/architect)?

DESIGN ASPECTS

How do you feel when you enter/look at (artifact)? Can you explain why you feel like this?
What do you like best/least about (artifact)? Why?

DISABILITY

Do you think your (disability) played a role in the process of designing (artifact)? If yes, what was the role?
How do you think that this influence played out in the design process?
Did (designer/architect) ask you for information about (disability)? What?
How did you provide information?
How do you think that this information was received?

DEBRIEFING/CLOSING

What are your reflections on the (artifact) now?
Is there anything else that we did not ask you about that you would like to talk about now?
Looking back, is there anything about the process of designing the (artifact) or the artifact itself that you would change? Why (not)?

Appendix C Interview Schedule (People without disabilities)

INTRODUCTION

We are interested in your experiences related to the design of (insert artefact name).
Would you be willing to give me a tour of the (artefact) and point out significant features?

ACTORS

Can you describe to me how this project got started?
Who was involved in the project?
What were the roles of the people in the project?
How did these people come to take on those specific roles?
How would you describe your relationship with these different people?

USER INVOLVEMENT OR DESIGN PROCESS

Can you describe the process of designing this (artifact) to me for your perspective?
Were you involved in the process? How?
What things did you want to see in the (artifact)?
Were they incorporated? Why (not)?
Did you ever meet with (designer/architect/others)? How often?
How did you communicate your needs with (name of designer/architect)?

DESIGN ASPECTS

How do you feel when you enter/look at (artifact)? Can you explain why you feel like this?
What do you like best/least about (artifact)? Why?

DEBRIEFING/CLOSING

What are your reflections on the (artifact) now?
Is there anything else that we did not ask you about that you would like to talk about now?
Looking back, is there anything about the process of designing the (artifact) or the artifact itself that you would change? Why (not)?

Appendix D Information Letter

Department of Human Ecology
Faculty of Agricultural, Life and Environmental Sciences
Room 302 Human Ecology Building **www.hecol.ualberta.ca**
Tel: 780 492 3824 Fax: 780 492 4821
Edmonton, Alberta, Canada T6G 2N **hecol@ualberta.ca**

INFORMATION LETTER

Title of Project

Explorations into how disability is situated in the design process

Principal Investigator:
Dr. Megan Strickfaden University of Alberta Phone: 780 490 3012

Department of Human Ecology

[Insert date]

Dear _____:

Why are we doing this study?

We are asking you to take part in a study on how people with disabilities are involved in the design process. We are interested in hearing about your thoughts, feelings and experiences on the process of designing (insert name of artifact, e.g., individual's house).

What happens if you agree to participate?

You will be asked a series of questions. The interview will be recorded. The tapes will be used to make sure that the written report of the different sessions is accurate.

We will summarize all of the information from the study in a written report. The report will not identify you or any of the other participants unless you want your name to be associated with your information.

How long will it take?

The interview will take between a 30 and 60 minutes depending on your responses. This will be scheduled at a time that is convenient for you.

Will you be paid participating in this study?

No, you will not be paid for your time. If you are required to travel to get to the interview or focus group, we will pay for your travel expenses (parking, taxi or bus fare).

What are the benefits are risks of being in this study?

You will be helping to provide information about your experience with the design process so that the researchers can consider the elements of an inclusive design process for people with a disability.

If any questions make you feel uncomfortable, you do not have to answer them. You can withdraw from the study at any time, and you do not have to give a reason for withdrawing.

What about confidentiality?

All information will be kept confidential (or private), except when professional codes of ethics or legislation (or the law) require reporting. The information from this study will be kept in a secure area (a locked filing cabinet) for a minimum of 5 years. Your name, or any other identifying

information, will not be included with the information. Your name will not be used in any presentations or publications of the study results. If you want to, you can choose a false name to refer to yourself in the research study.

The information gathered for this project may be looked at in future to help us answer other questions. If so, the Ethics Board will first review the project to make sure that the information will be used ethically.

Are you interested in taking part in the study?
If you wish to participate in this research study, please complete the attached consent form and return it to Dr. Strickfaden.

Contacts for this study
The principal researcher for this project is Dr. Megan Strickfaden, Assistant Professor, Department of Human Ecology, University of Alberta (326 Human Ecology Building, University of Alberta, 8308- 114 Street, Edmonton, Alberta T6G 2N1 phone: 780 492 3012; Fax: 780 492 4821; e-mail: megan.strickdaen@ualberta.ca.
If you have any further questions about this study, please contact Dr. Megan Strickfaden.
If you have any questions about your rights as a study participant, please contact the University of Alberta Research Ethics Board at (780) 492-0302.

Your signature on the attached consent form means that you understand the information about participating in this study, and that you agree to participate in the study. Please keep these pages to refer to in the future.

Sincerely,

Dr. Megan Strickfaden,
Assistant Professor, Department of Human Ecology

Appendix E Consent Form

Department of Human Ecology
Faculty of Agricultural, Life and Environmental Sciences

Room 302 Human Ecology Building www.hecol.ualberta.ca Tel: 780 492 3824 Fax: 780 492 4821
Edmonton, Alberta, Canada T6G 2N hecol@ualberta.ca

CONSENT FORM

Part 1: Explorations into how disability is situated in the design process

Principal Investigator:
Dr. Megan Strickfaden University of Alberta Phone: 780 490 3012
Department of Human Ecology

Part 2 (to be completed by the research participant):

1. Do you understand that you have been asked to participate in a research study?
Yes ☐ No ☐
2. Have you read the attached Information Sheet?
Yes ☐ No ☐
3. Do you understand the benefits and risks involved in taking part in this research study?
Yes ☐ No ☐
4. Have you had an opportunity to ask questions and discuss this study?
Yes ☐ No ☐
5. Do you understand that you are free to withdraw from the study at any time without giving a reason?
Yes ☐ No ☐
6. Has the issue of confidentiality been explained to you?
Yes ☐ No ☐
7. Do you understand who will have access to your records?
Yes ☐ No ☐
8. Who explained this study to you?

_____
__

I agree to take part in this study Yes ☐
No ☐

Signature of Research Subject
_____

(Print Name)
_____

Date: _____

I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate.

Signature of Investigator or Designer _____
Date: _____

THE INFORMATION SHEET MUST BE ATTACHED TO THIS CONSENT FORM AND A COPY GIVEN TO THE RESEARCHER

Appendix F Evaluation of the Premier's Council Office Space

Age: **Gender:** **Any disability? :**

1) Were you present at Premiers Council, when the renovation happened?

2) If yes, were you part of the design process?

3) Tell us your experience of the design process.

4) How do you feel when you enter/look at the space? Can you explain why you feel like this?

5) What do you like best about the space? Why?

6) Do you like least about the space? Why?

7) Additional comments?

Appendix G Responses to the questionnaire from the participants

	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5	Participant 6
How do you feel when enter/look at the space? Can you explain why you feel like this?	I feel unencumbered when I walk into/look at the space. It appears to be accessible (e.g. "floor plates", serrated railings, wide berth halls and entrances). I like the look and feel as it promotes & facilitates accessibility and collaboration.	This space is open and structured.	Comfortable, open concept, not cluttered, room to mingle in reception area & large board with many people including people who use wheelchairs, guide/service dogs without bumping into each other	This space makes me feel happy & collaborative because the space is open & the colors are warm. The library workspace is great for team collaboration.	Happy. It is bright, open, lots of windows. Colors are calming. Nice and open . . . feel free.	The space feels very open when you walk in. This provides a sense of calm as the space is not cluttered or closed in.
What do you like best about the space? Why?	Openness – facilitates/promotes collaboration. Wide spaces – facilitates entry & mobilization by everyone	The openness allows light & space to be present.	Large space, fewer people so I am able to focus on my work (Quiet Office), but also allow for or accommodates large groups – accessible washroom, door ways & offices and 2 tables in large boardroom.	The Space is Open & Warm. It doesn't make you feel like you are in a typical office space.	Windows. I love downtown + love looking out @ it everyday. I love when the sun rises and reflects off the glass building beside us.	I like best the wide hallways and open offices because they provide a lot of room for those who require it and are very nice to wok in.
What do you like least about the space? Why?	Cubicles – requires the booking of alternative, secure spaces for confidential conversations. Curved wall in the centre of the office – I understand this can pose difficulties for those with visual impairments		When office is full and many activities going on all at once, open concept and cubicles make it difficult to focus	The temperature is often cold.	Nothing to do with the space . . . it is great.	The space in the boardroom does not accommodate teleconference phones with cords because it is a tripping hazard due to placement of the plug-ins, not sure if this was considered when designed.
Additional Comments?	Not Applicable	I am not disabled (in a wheelchair) but if I were my desk area was not designed the best for a wheelchair. Also the height of the divider.		Because of the way our particular office space is designed, we can have team meetings all the times without having to interrupt anyone or find a boardroom.	I do not have a "disability" that would require any workspace issues.	The space works for both persons with disabilities and those without. Universal design should be used in many more offices