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EXPERIENCES OF INTERACTION FOR STUDENTS WITH DISABILITIES IN ONLINE UNIVERSITY PROGRAMS

BY

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The future of learning.

Approval of Thesis

The undersigned certify that they have read the thesis entitled

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Submitted by

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Dedication

To my late parents, my family, friends, and all lifelong learners with and without disabilities.

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Abstract

There is growing interest in online learners with disabilities because of an increase in the number of students with disabilities enrolled in universities and colleges across North America, enabling human rights legislation, and opportunities presented by advances in use of information and communication technologies in education. The past decade has seen a significant number of publications covering this topic; however, the experience of students with disabilities engaged in online learning remains an under-researched area. To address this gap in the research literature, a descriptive phenomenological study was conducted to describe the experience of interaction for students with disabilities who study online in an institution of higher education.

The structure of the experience of interactions for students with disabilities in online programs had five constituents: having access, working harder, being supported, being connected, and becoming. Having access, working harder, being supported, and being connected were constituents that had a high intra-constituent variability in which experiences of students were not described as a singularity but as a continuum that ranged from a lack of or a limited presence of the constituent to fully present constituent in participants' descriptions. Students also described the following barriers: processes of accessing accommodations, inconsistencies in providing accommodations, a lack of awareness of disability, accommodations, rights and obligations among instructors, responsiveness of the system to students' inquiries, and over-reliance on a single mode or an activity in the design of courses. Knowing themselves and flexibility were facilitators that helped students with disabilities learn in the online environment. Flexibility was a multidimensional concept including flexibility of time, people, processes, infrastructure, course design, and funding.

This research contributes to the current body of knowledge by capturing experiences of students with disabilities that are mostly absent from the literature. By describing the nature of students' experiences of online learning, this study revealed that there was an institutional capacity to support students with disabilities in online higher education; however, this capacity was not present consistently within programs and across different departments pointing to the areas of potential changes at instructional, administrative, service, and policy levels.

Keywords: disabled/students with disabilities, interaction, online university programs/higher/postsecondary education

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List of Abbreviations

ASD	Access to Students with Disabilities
CRPD	Convention on the Rights of Persons with Disabilities
CUSC	Canadian University Survey Consortium
HRC	high-risk course
HRSDC	Human Resources and Skills Development Canada
ICF	International Classification of Functioning, Disability and Health
ICIDH	International Classification of Impairment, Disability, and Handicap
LMS	learning management system
MOOC	Massive Open Online Course
OECD	Organization for Economic Co-operation and Development
UPIAS	Union of the Physically Impaired against Segregation
UK	United Kingdom
UN	United Nations
USA	United States of America
WHO	World Health Organization

List of Terms and Definitions

Numerous terms pertaining to the study of online learning for students with disabilities have imprecise or multiple meanings. Following are the definitions of key terms used in the main research question, “What is the structure of experience of interaction for undergraduate and graduate students with disabilities who study online?”

- *Structure of experience* consists of meanings that do “not change or vary through contingencies and context” (Vagle, 2014, p. 52), also called invariant meanings, and their relationships (Giorgi, 2009), which are revealed and described by the researcher using a systematic analytical process.
- *Disability* refers to “the interaction between persons with impairments and attitudinal and environmental barriers that hinder their full and effective participation in society on an equal basis with others,” (United Nations, 2008, p. 1).
- *Interaction* “is a dialogue or discourse or event between two or more participants and objects which occurs synchronously and/or asynchronously mediated by response or feedback and interfaced by technology” (Muirhead & Juwah, 2005, p. 12)
- Studying *online* is “The use of the Internet to access learning materials; to interact with the content, instructor, and other learners; and to obtain support during the learning process, in order to acquire knowledge, to construct personal meaning, and to grow from the learning experience” (Ally, 2008, p. 17).

- *Higher education* refers to postsecondary education (undergraduate and graduate courses) delivered by a university or college (Seale, 2014).

CHAPTER 1 - INTRODUCTION

This descriptive phenomenological study focuses on experiences of interaction for undergraduate and graduate students with disabilities studying in online university programs. Descriptive phenomenology is a qualitative method used to study a structure of the experience (Giorgi, 2009) that makes that experience "what it *is* and without which it could not be what it is" (Van Manen, 1997, p. 10). Few studies in the research literature illuminate experiences of students with disabilities in online learning environments. Research on students with disabilities and higher education in general, and online higher education in particular, is mostly focused on technology and support services, while pedagogy and theories of learning and disability are somewhat neglected. The research is diverse to compare, often small to generalize, and lacks theoretical and conceptual underpinning, making it difficult to establish an evidence base. Research evidence is skewed towards the quantitative methods that dominate the research in the field.

There are qualitative studies describing the experience of students with disabilities, but these are few in numbers. The voices of students with disabilities that could be captured in qualitative studies are mostly absent from the research literature. As the number of students with disabilities at universities is growing, and as more online learning opportunities are provided for them, there is a need to better understand commonalities and structures that underline their experiences as they describe them.

Since the beginning of the 21st century, increasing numbers of students with disabilities are studying at the institutions of higher education internationally, as reported by the Organization for Economic Co-operation and Development (OECD) (Ebersold, 2008). In North America, this trend is observable as the postsecondary disability service providers reported an increase in the number of students requesting accommodation (Harrison & Wolforth, 2012). For example, in Alberta over the three-year period from 2007–08 to 2010–11, the number of postsecondary students with disabilities seeking services and accommodations increased by 41.9% (Ministry of Enterprise and Advanced Education, 2014). According to the Canadian University Survey Consortium (CUSC) the population of graduating students who self-identify as having a disability in Canada also grew from 5% in 1997 to 17% in 2015 (CUSC, 1997, 2015). For the first-year students who self-identify as having a disability the increase was even greater, from 3% in 1998 to 22% in 2016 (CUSC, 1998, 2016).

Numerous factors have contributed to this increase. The 2008 United Nations Convention on the Rights of Persons with Disabilities (CRPD) and enforcement of national and international anti-discrimination and accessibility legislation are seen as contributing factors to this increase (Barnard-Brak & Sulak, 2010; Seale, 2014). The international trend of diversification of student populations (Ebersold, 2008) has resulted in more students with disabilities applying to university programs. In addition, the proliferation of online courses and programs has created new educational opportunities for students with disabilities, as online education provides better availability and accessibility to nearly all citizens, including those with disabilities (Anderson, 2008b). For example, students with mobility disabilities can take courses from their accessible homes; students with visual impairments can use text-to-speech or screen-reading programs to access online learning resources; students with hearing impairments can participate in asynchronous text-based discussions; or students with learning disabilities can use various technologies to support their comprehension, expression, and writing. Although computer technologies have potential to remove barriers for students with disabilities, they can also create new electronic environmental barriers. Examples of these barriers include: videos without caption or audio files without transcriptions that are not accessible for students who are deaf; pictures and graphics without alternate text are not accessible to students who are blind; font size, screen size, and color that cannot be adjusted, and unorganized and cluttered pages may affect some students; the electronic content that requires the use of a mouse for those who cannot use a mouse (Burgstahler, 2015; Fichten, Asuncion, Barile, Fossey, & Robillard, 2001).

The growing interest in disability and online learning can also be seen in the published academic literature. Research published in peer reviewed journals reflects diversity, complexity, and the current nascent state of research in disability and online higher education. Studies of postsecondary students with disabilities are mostly quantitative and descriptive in nature, focusing on the demographics of students with disabilities, the technology, and types of support services they receive from the perspective of service providers (Fichten et al., 2001). Research involving pedagogy and theories of learning and disability are comparatively neglected. Research addressing the perceptions and experiences of students with disabilities mostly focus on use of a specific product or service. To address a lack of research on experiences of students with disabilities, few researchers started capturing the absent voices of students with disabilities (Denhart, 2008; Fuller, Healey, Bradley, & Hall, 2004; Heindel, 2014; Seale, 2010, 2014; Wald, Draffan, and Seale, 2009).

This study contributes to the emerging body of knowledge on the experiences of students with disabilities. It aims to capture experiences of interaction for undergraduate and graduate students with disabilities in online higher education in order to provide qualitative evidence with a potential to shape the ways that we conceptualize and design university programs and disability support services in the online learning environment. I have selected descriptive phenomenology as the methodology, because the research is concerned with the in-depth understanding of the nature of human experiences (Creswell, 1998; Giorgi, 2009; Moustakas, 1994). Descriptive phenomenology describes unchangeable and necessary structures of experience and in that way, can provide an insider's view of what is being experienced.

Problem Statement

The 21st century has seen countless advances in educational technology that have removed barriers to education for all learners in terms of access, distance, and time (Babu & Midha, 2007). In addition, students with disabilities also benefited from new assistive technologies. These technological advances appeared to make online learning attractive to students with disabilities. For example, in 2013-14, Athabasca University, the only fully distance education university in Alberta, reported that 6% of enrolled students sought support services and accommodations, while the University of Alberta, the University of Calgary, and the University of Lethbridge reported figures of 2.7%, 4.5%, and 4.1%, respectively (Ministry of Enterprise and Advanced Education, 2015).

This period has also been marked by the United Nations (2008) passing the Convention on the Rights of Persons with Disabilities (CRPD) and the implementation of legislation governing the rights of people with disabilities including education.

Moreover, under the Canadian Charter of Rights and Freedoms (1982), the Canadian Human Rights Act (1985), and provincial and territorial human rights laws, persons with disabilities are guaranteed equal access to postsecondary education without discrimination based on disability (Canadian Human Rights Commission, 2017). Educational institutions have a duty to accommodate students with disabilities and to remove barriers to their education.

The actual numbers of students with disabilities in Canadian universities is difficult to determine (Harrison & Wolforth, 2012). However, what is certain is that those numbers are steadily increasing as measured by the number of students with disabilities who request accommodation (Ministry of Enterprise and Advanced Education, 2015), and the number of students who self-identify as having a disability (CUSC, 1997, 1998, 2015, 2016). In 2015, out of those who self-identified as having a disability, only 32% reported that they required accommodation from their university (CUSC, 2016). This implies that by counting only students who received services from disability support offices, the total number of students with disabilities is under-reported, corroborating the findings of the study at Ontario universities by Nicholls, Li, Leslie, Belman, and Stockdale (2012).

Postsecondary students with disabilities are not a homogenous population. According to the Canadian University Survey Consortium Report (2015), the most commonly reported disabilities are mental health (8%), vision impairment (3%), and attention deficit (3%). Students experience different types and severity of disabilities that “evoke different sociocultural responses as well as different experiential embodiment of disability” (Liasidou, 2014, p. 130). Certain types of disabilities appear to have a greater effect on educational attainment; for example, 59.5% of 24–44 year-olds with a hearing, seeing, mobility, agility, pain, or communication-related disability attained a university or college credential compared to 43.7% of students with learning, memory, developmental, psychological, or multiple disabilities (McCloy & DeClou, 2013). Disability and its severity also influenced course loads, time to achieve their current level of education, and caused long interruptions (Arim, 2015). However, research indicates that students with disabilities who received more types of support had somewhat better results in terms of course completion (Moisey, 2004). The most common support services and accommodations as reported in the literature are different exam arrangements, course accommodations, assistive technology, accessible physical or virtual environments, accessible library services, alternative text formats, disability-specific health or counselling services, attendant care, academic strategists, and educational tutors (Holmes, 2005; Moisey, 2004).

Despite increases in the numbers of students with disabilities, when compared to their peers without disabilities, students with disabilities have lower university participation and attainment rates (Arim, 2015; Finnie, Childs, & Wismer, 2011). They still face barriers accessing postsecondary education. Barriers include inaccessible infrastructure, inappropriate teaching and assessment strategies, negative attitudes, disclosure concerns, and additional disability-related expenses (Fichten, Ferraro, Asuncion, Chwojka, Barile, Nguyen, . . . Wolforth, 2009; Fuller et al., 2004; Nicholls, Li, Leslie et al., 2012; Standing Senate Committee on Social Affairs, Science and Technology, 2011).

The literature and theory on online education largely ignores students with disabilities. The literature on students with disabilities in higher education includes technology-mediated education; however, it predominantly focuses on specific products or services. What is known about students with disabilities mostly relies on evidence generated in studies using quantitative methodologies. There are very few qualitative studies (Heindel, 2014; Seale, Draffan, & Wald, 2010; Wald et al., 2009). Qualitative studies revealed that students with disabilities have similar experiences of online education to their peers without disabilities (Wald et al., 2009). They liked the flexibility of scheduling and sufficient time to process information afforded by online learning, while disliked a lack of interaction (Heindel, 2014). However, they had some unique challenges because of their disability. Heindel (2014) reported their concerns about disclosing disability, a lack of instructors' understanding of disability, and a lack of knowledge about accommodation options among disability service providers. Wald et al. (2009) reported that students with disabilities had less time to study online, as they had to deal with disability-related issues, learn about assistive technologies and use them effectively, even though they considered themselves confident users of technology.

Evidence generated in quantitative studies allows us to observe certain trends in participation, attainment, and use of technology related to postsecondary students with disabilities. Few qualitative studies have produced valuable insights about experiences of students with disabilities; further, deeper understanding of online learning as perceived by students with disabilities themselves remains lacking.

Postsecondary institutions face the increasing number of students with disabilities to whom they are legally obliged to provide equal access. Advances in educational and assistive technologies provide new educational opportunities to meet the needs of diverse population of students with disabilities. Despite these trends, legal obligations, and opportunities, students with disabilities still face barriers, and their overall participation and attainment rates are lagging behind that of their peers without disabilities. Understanding commonalities and structures that underline the issue from the perspective of students with disabilities is a less-researched area, and thus warrants further investigation.

Statement of Purpose

The purpose of this descriptive phenomenological study is to describe the structure of experience of interaction for undergraduate and graduate students with disabilities in online university programs. The purpose of the proposed research is shaped, first, by the need to hear from students with disabilities about their experiences. Second, it is shaped by the identified gap in the literature and the corresponding requests for further research that examines the perceptions and experiences of online students with disabilities in higher education. Third, it is shaped by the need of policy-makers to have a good understanding of experiences of students with disabilities, in order to inform policy development.

Research Questions

To address a gap in the existing knowledge and literature on online learning for students with disabilities, this study answered the following main research question: What is the structure of experience of interactions for undergraduate and graduate students with disabilities who study online?

It also addressed the following two sub-questions:

- What are their experiences of interactions with content, instructors or tutors, other students, system, and support services?
- What are the barriers and facilitators that shape the online learning experiences of students with disabilities?

Significance of the Study

In answering the main research question and sub-questions, this study described the lived experiences of interactions in online learning for students with disabilities (Creswell, 1998). It focused on the structures of experiences as described by the students themselves (Giorgi, 2009; Moustakas, 1994). Grounded in descriptions of lived experiences, this research has the potential to influence the way online educators perceive, theorize, teach, and support undergraduate and graduate students with disabilities. By looking for shared experiences of students with different types of disabilities, the study described common structures that go beyond the boundaries of specific disability. The fills the gap in the literature by deepening our understanding of interactions that are essential components of learning online, as well as barriers and facilitators that affected students' experience of studying online with a disability. Students' insights revealed in this study may provide the way how to regulate and enforce regulations on access and services for students with disabilities in a broader community. Findings of this research may guide future research.

Uniqueness of the Study and Contribution to Scholarship

The uniqueness of this research is that it focuses on structures of the experience of interaction for students with disabilities studying online, a topic and a population largely neglected in the research literature. A literature review found only few qualitative studies that captured the experiences of students with disabilities.

This study illuminated students' experiences of online learning and has the potential to influence the way that researchers and educators perceive, theorize, and conceptualize disability in higher education. It in turn may impact how online programs are designed and delivered to respond to the needs of students with disabilities, and how regulations regarding access and services for students with disabilities in the broader community are enforced. It may also guide the way that future research questions are formulated, based on an emerging understanding of disability in online higher education.

Delimitations

Selection of method, participants, and the institution delimits this study. Giorgi's descriptive phenomenological method prescribes specific steps in the research process, and focuses on generating a rich description of experience rather than interpreting it.

Participants in this study were undergraduate and graduate students from a single-mode Canadian distance education institution, who self-identified as having a disability, who completed at least two online courses, and who were enrolled in a course at the time of the interview.

Recruitment of participants from a single institution was another delimitation. The participating institution was selected because it was a leader in online education with a well-developed system of distance education that was grounded in learning theories and research evidence.

The study included students with different types of disabilities to maintain the cross-disability perspective. However, it included only those who had experience of studying online to the exclusion of those who were in mobile and blended learning environments in order to have participants with maximum diversity in terms of disability experience and homogeneity in terms of learning environments. This approach ensured that although diverse, these experiences had sufficient number of common constituents to allow for the development of the structure of experiences.

Limitations

All efforts were made to minimize the methodological limitations of this descriptive phenomenological study, however, a number remained. Descriptive phenomenology focuses on generating a rich description of an experience. An inherent limitation on this methodology is that by focusing on the description of an experience, there is a possibility to miss information on what preceded the experience and what the outcomes were.

The participant recruitment process was also a limitation. Although purposeful, criterion-based sampling was used to recruit participants, participants self-selected by responding to an invitation to participate in the study for reasons of confidentiality and anonymity, and their right to self-define. None of the participants had a visual impairment, was blind or deaf.

Another limitation is that I was the sole researcher collecting and analyzing data. To ameliorate this limitation, from the beginning of the study I had regular peer review meetings with a colleague who was also conducting a phenomenological study. I presented the data analysis to the Committee members.

Dissertation Outline

The dissertation aims to present insiders' perspectives on what it is like to experience interaction for undergraduate and graduate students with disabilities who study online at an institution of higher education, thus revealing the structures of their experiences. The dissertation has the following chapters: (1) Introduction, which includes the statement of the problem and significance of the study; (2) Literature Review, which presents a balanced review of the scientific literature, policies, and theories of online learning for students with disabilities, including the theoretical framework for the study; (3) Methods, which provides details of the methodological approach employed in this study; (4) Findings, which includes answers to the main research question and sub-questions presented as 15 individual narratives, a composite description of the structure of experience, and barriers and facilitators to studying online for university students with disabilities; (5) Discussion, which examines the findings of this study in relation to existing research, policy, and theory; (6) Conclusions, which provides conclusions and recommendations for practice and further research in this area.

Chapter 1 Summary

In Chapter 1, I introduced the phenomenon under investigation, interactions of students with disabilities in online university programs and situated it within a broader context. I presented the statement of the problem and the purpose of the study. I discussed the significance of the study, its uniqueness, and contribution to the field. I also presented the research questions, study limitations, and delimitations. I provided the overview of the chapters in this thesis.

In the next Chapter I review the scientific literature, Canadian policies, and theories that are relevant for students with disabilities in online learning environments. I determined the scope of the review based on the need to locate this study within the existing body of knowledge, policy environment, and theoretical foundations while balancing it with the demand of a phenomenological approach to limit the literature review in order to remain open to experiences as described by the participants in the study.

CHAPTER 2: LITERATURE REVIEW

The aim of this literature review was to situate the interactions of students with disabilities in online university programs within the current research, policy, and theoretical landscape and to illuminate the phenomenon’s various aspects and complexity. I conducted a review of the literature on the intersection of disability, higher education, and online learning. My review included empirical studies, literature reviews, theoretical articles, dissertations, books, reports, web pages, policies, and legislation. Documents were identified by conducting searches in the Athabasca University Library catalogue and electronic data bases, and through Google Scholar and Google. The literature review was guided by the following questions:

1. What are the dominant ways to conceptualize disability?
2. How is disability conceptualized in face-to-face and online environments?
3. What are the key findings of empirical studies about students with disabilities in online higher education?
4. What are the experiences of students with disabilities in face-to-face and online university courses as reported in phenomenological studies?
5. What are the Canadian laws and policies that regulate disability, higher education, online learning, and accessibility?
6. What are the potential theories and frameworks to explain disability and online higher education?

This literature review focused primarily on primary or original publications that were peer reviewed, archival and retrievable, and represent research that has not been previously published. The criteria for inclusion of publications in this review was based on the American Psychological Association (2010) description of types of article. Empirical articles were included if they reflected the stages in the research process including introduction, method, findings and discussion, with a focus on clear description of the methodology and findings that had implications for theory and practice. Literature reviews and theoretical articles were included if they provided critical evaluation of the already published materials and contributed to advancing the theory. Brief reports, opinion pieces, commentaries, replies to previously published articles, letters to the editor were excluded.

Researchers using phenomenological methods grapple with the question of how much literature review and theoretical conceptualization is enough from a phenomenological perspective while avoiding compromising openness to the phenomenon as it presents itself (Vagle, 2014). Therefore, in my initial literature review I provided an overview of the published literature ensuring that the findings of the studies published did not skew my openness towards participants' naïve descriptions, shape my view about the phenomenon. The initial literature review helped me to focus my study and to identify what is known in order to be able to engage in a conscious act of bracketing. Upon the completion of the study, I revisited the literature review to sharpen the critical stance when presenting the published literature.

Conceptualizing Disability: A Review of Disability Models

The way that disability is conceptualized affects the way that laws and policies are created, how programs and services are implemented, and how research questions are asked. Therefore, a general understanding of how disability is defined and conceptualized is necessary to examine how disability is defined and addressed in postsecondary education. Historically, several models of disability have emerged, including medical, social, and human rights models. Oliver (2009) identified two broad categories of disability models: the individual model and the social model. The individual model of disability is based in personal tragedy and focuses on an individual. It includes models such as the medical, charity, and rehabilitation models.

The most used and most influential individual model of disability is the medical model. The main characteristic of this model is that it explains disability as a personal tragedy and an individual deficiency that must be fixed by professionals and professional interventions. The person must be individually treated, intervened on, and/or adjusted to fit societal norms. The aim is to cure the individual or cause a change in his or her behaviour. According to Withers (2012), “The medical model individualizes disability, roots it in the body and seeks to cure or reduce it” (p. 54). Medicalization is a key characteristic of the medical model. Withers (2012) identifies various levels at which medicalization may occur: conceptually (e.g., using medical terminology to define a problem); institutionally (e.g., using physicians to legitimate a problem); and doctor-patient interaction (e.g., diagnosing a problem). An example of the application of the medical model of disability in education is the use of medical diagnosis and medical labels as a basis for accommodation. In the medical model, disability is a problem of an individual (World Health Organization, 2001).

The social model of disability, on the other hand, locates the problem within society with its disabling barriers that prevent persons with disabilities from participating. It developed out of opposition to the individual model of disability, which was at one time the dominant way to conceptualize and explain disability. Oliver (1983) argued that persons with disabilities are disabled not by their impairments but by societal barriers. The social model has its roots in the United Kingdom (UK), and was outlined in 1976 in the Fundamental Principles of Disability by the Union of the Physically Impaired against Segregation (UPIAS), which introduced the view that society has disabled people by imposing disability on the top of impairment. The social model is grounded in the distinction between impairment and disability. UPIAS defined impairment as “lacking part of or all of a limb, or having a defective limb, organ or mechanism of the body” (UPIAS, 1976; as cited in Oliver, 2009, p. 42), whereas it defined disability as a disadvantage, restriction, or oppression imposed by society preventing persons with impairments from participation in mainstream social activities.

Oliver (1996) juxtaposed a number of characteristics of the individual and social models: personal tragedy theory vs. social oppression theory; personal vs. social problem; individual treatment vs. social action; medicalization vs. self-help; professional dominance vs. individual and collective responsibility; expertise vs. experience; adjustment vs. affirmation; individual identity vs. collective identity; prejudice vs. discrimination; attitudes vs. behaviour; care vs. rights; control vs. choice; policy vs. politics; and individual adaptation vs. social change. Shakespeare (2006) critiqued this binary approach as an oversimplification of the complex interplay of factors that resulted in disability, and pointed out that qualitative research has shown that it is impossible to operationalize and distinguish impairment and disability. In response to this critique, Oliver (2009) reiterated that his approach was a simplification of the complex disability reality, and that he had used it to emphasize the shift in focus to the disabling environment away from the individual with an impairment who, until the introduction of the social model, was seen as deficient or deviant. He argued that a specific disability problem could not be resolved in isolation from the environment as a whole; for example, reducing unemployment of persons with disabilities required complex intervention that dealt with not only labour issues but also transportation, culture, and education. Although the social model of disability did not deny the usefulness of individual medical, rehabilitation, education, or employment interventions, the main criticism of the social model remains – that it neglects the impairment and its bodily experience and does not recognize the impact of culture and diversity of experience. It also ignores the personal, impairment, and body aspect of disability. As Shakespeare (2006) emphasized, even if all social barriers were removed, there would "always be residual disadvantage attached to many impairments" (p. 5).

While the disability movement in Britain was built by disability activists in the 1970s around the social model of disability and the anti-oppression framework, at the same time in Scandinavian countries the understanding of disability was based in a relational model of disability. The Scandinavian approach was characterized by a relational, socio-contextual approach to disability, in which disability was seen as relative and situational and defined as "a mismatch between the individual and environment" (Shakespeare, 2006, p. 25) that occurred because of the individual impairment and unaccommodating environment within a given socio-cultural context.

In the 1970's and 1980's, in Canada and the United States, a new understanding of disability grew out of the rejection of the medical model and the management of disability based on that model, in favour of the recognition of social barriers. The social model attributed disability not to an individual but to the environment, requiring a different kind of response to disability. This response has been described as a shift from professional interventions on persons with disabilities to social change. Society at large became responsible for environmental adaptations and changes. World Health Organization (WHO) (2001) described the issue as “an attitudinal or ideological one requiring social change, which at the political level becomes a question of human rights” (p. 20).

North American disability activists were influenced by the social model. The independent living and human rights movements in North America focused on access to mainstream society for persons with disabilities, while in the United Kingdom the focus was on changing society (Withers, 2012). In both the United Kingdom and North America, the changed focus meant a paradigm shift.

In 1980, Disabled People International was formed at the Rehabilitation International World Congress in Winnipeg. This event marked the final departure in Canada from the medical model towards the citizenship approach, in which persons with disabilities defined themselves as “citizens with the rights: they believed that they were not the patients and caseloads of doctors and social workers” (Driedger, 1989, p. 121). The focus of the citizenship or human rights model of disability was equal access without discrimination for persons with disabilities by ensuring they had the same rights and freedoms as persons without disabilities. The human rights model provided a relational framework for ending discrimination and removing attitudinal, social, institutional, and physical barriers for which public institutions and employers were responsible (Withers, 2012).

In 1990s, WHO started the process of redefining disability as it relates to health. Earlier definitions used by WHO (1980) in the International Classification of Impairment, Disability, and Handicap (ICIDH) were criticized as being too medically oriented and failing to take the disabling environment into consideration. The ICIDH (WHO, 1980) defined impairment as a physical problem of an individual, such as a loss or abnormality in body function or body structure. These impairments caused disabilities, which were in turn defined as problems with performing activities in a way that was considered normal. Handicap was defined as a disadvantage an individual faced because of an impairment or disability that limited or prevented the fulfilment of a role that was considered normal. Although the term handicap recognized the environmental factors in role fulfilment, it did not fully reflect the disabling impact of these factors on persons with disabilities.

In 2001, WHO published the International Classification of Functioning, Disability and Health (ICF), which aimed to overcome the weaknesses of the previous classification as well as consider the opposing medical and social models. Both models were critiqued because of their inadequacy to explain the complexity of disability and reducing it to an impairment/disability binary concept. Marks (1997) reported that disability could be understood only if we consider both individual and environmental factors including relationships, representations, and physical environment. Shakespeare (2006) argued that both models may imply a victim position for persons with disabilities; the medical model viewed persons with disabilities as victims of a broken body or mind, while the social model of disability saw them as victims of an oppressive society.

The ICF introduced a biopsychosocial model in which disability and functioning were results of interactions between health conditions (diseases, disorders, and injuries) and contextual factors (environmental and personal influences). Shakespeare (2006) argued that “disability is always an interaction between individual and contextual factors” (p. 55), and, as such, the ICF had captured the resulting complexity of disability. The ICF model is aligned with an interactionist model of disability in which the person, the person’s impairment, and the environment interact dynamically and are represented on a range from enabling to disabling environments, from more to less effective individual choices, and from minimal to severe impairment (Evans, Broido, Brown, Wilke, 2017).

The United Nations’ (2008) Convention on Rights of Persons with Disabilities (CRPD) uses a definition that sees disability as a result of an interaction between persons with impairments and their environments with barriers that hinder their full, effective, and equal participation in the society. Stein (2007) describes the human rights model of disability as an inclusive model based on the premise that societies must recognize that every person has inherent human worth rather than valuing individuals based on their functional abilities to contribute to society. She argues that by focusing on the potential talent of every individual above impaired function, she develops a paradigm that “embraces disability as a universal variation rather than as an aberration” (Stein, 2007, p.77). Connor, Valle, & Hale (2012) viewed disability as a part of normal human diversity rather than a pathology. As human beings, persons with disabilities have rights to life, movement, thought, expression, religion, and political participation. They also have rights that ensure their standard of living, such as rights to housing, health, rehabilitation, education, and development (Connor, Valle, & Hale, 2012; Stein, 2007). The disability human rights model is embodied in the CRPD (United Nations, 2008), which promotes and protects rights and freedoms of persons with disabilities, including individual autonomy and independence, participation, and inherent dignity and worth. In practical terms and applied to online higher education, the disability human rights model means that persons with disabilities have rights to education on an equal basis with everyone else, and in order to ensure their equal participation, they have a right to receive accommodation to support their individual autonomy and independence.

The models of disability described above provide a foundation for explaining disability, but they do not offer a universally agreed upon definition (Withers, 2012). This diversity of models and frameworks allows scholars to examine differences in experiences of disability (Evans et al., 2017). Since disability is an evolving concept as well as a social construct that is contextual, situational, and relational in nature, persons with disabilities, scholars, and practitioners found it challenging to develop a definition that can be applied in various contexts and for various purposes.

Conceptualizing Disability in Online Environments

Online environments present opportunities to remove barriers to participation for persons with disabilities. Research has shown the benefits of information and communication technologies for persons with disability in terms of alleviating isolation and improving the quality and level of communication (Bradley & Poppen, 2003). Stewart II, Mallery, and Choi (2010) suggested that students with disabilities may perform better in online courses. However, online environments can also create new digital barriers for them (Burgstahler, 2015; Fichten, Asuncion, Barile, Fossey, & Robillard, 2001). Goggin and Newell (2003), from a critical disability perspective, warned that opportunities to remove barriers in online education should not be missed; otherwise, there is a danger that the status quo will be maintained, and charity, medical, or other oppressive discouses of disability will be replicated in the online environments. This statement by Goggin and Newell (2003) indicates that conceptualization of disability is an important aspect in building more inclusive online environments.

Research in disability and online education is predominantly focused on technology and accessibility; theoretical articles in which disability is conceptualized are mostly lacking. In recent years, several researchers have made efforts to expand the way that disability is conceptualized and constructed in online learning environments, moving it beyond technology, accessibility, and individual factors to include social factors, interactions, choices, power relations, and environmental resources (Carr, 2010; Seale, 2014; Seale et al., 2010). These authors have recommended encompassing technology, accessibility, individual experiences of disability, social context, and opportunities to develop individual talents and achieve academic goals in the online environment in which disability is constructed and experienced. Conceptual work by Carr (2010) and Seale (2010, 2013) pointed out the weakness of current approaches to disability in online environments that focus overly on accessibility and skills that do not guarantee digital inclusion. Seale (2013) identified social and cultural factors that play a significant role in inclusion of postsecondary students with disabilities. Carr (2010) researched how disability was constructed in a virtual game environment. Seale (2010, 2013) looked at digital inclusion, digital agility, digital decision-making, and digital capital as concepts on which to build a conceptual framework for understanding the role of technology in the experiences of students with disabilities who study online. Seale’s work on conceptualization of disability in online environment, as well as the other research by her and her colleagues Draffan and Wald were part of the LEXDIS project at the University of Southampton, within the E-Learning Pedagogy Program. The aim of this project was to explore e-learning experiences of students with disabilities as they relate to interactions of students and technologies. Although their work included only one institutions, their seminal ideas were an important contribution to the field as they were methodologically rigorous and well documented, allowing other researchers to critically examine their work.

Constructing Disability in Online Worlds

Carr (2010) explored the construction of disability by deaf users (also called residents) of the virtual world of Second Life and the implications for educators who used Second Life. Second Life (n.d.) is described on its webpage as a virtual reality game, a 3D world where everyone is a real person and every place one visits is built by people who play it. Carr's (2010) cross-disciplinary, qualitative research used a methodology rooted in virtual ethnography. It investigated the impact of a new voice feature on deaf residents. Prior to the adding of the voice feature, residents of Second Life used text-based chat to communicate. Once the voice feature was introduced, residents left the chat rooms and started using the voice feature to communicate. Deaf residents found themselves excluded from events and relationships, and identity loss became a major theme. They lost friends as well as opportunities to participate in groups and activities in spaces that became inaccessible for them. The deaf participants did not describe the loss as a deficit but as a process of change, negotiation, and adjustment. Participants were very sensitive to being perceived by others as “passive, dependent or tragic” (Carr, 2010, p. 58) and perceived only through their impairment, as they had to withdraw from many voice-based activities and groups. The introduction of voice destabilized their roles and identities and affected different participants to a different degree. One participant felt that introduction of voice disabled her, as she had to identify herself as deaf and carry the label of difference and be seen by others as different. Issues of self-identity, labelling, marginalization, and individual adjustment surfaced in the study. The voice feature that improved accessibility and opportunities for participation for some residents of Second Life negatively affected the self-identity of deaf residents, forcing them to change the way they interacted with others. Their participation was limited, and they were marginalized. Although they still had a chance to communicate with others by using the text-based chat feature, this form of communication was perceived as being of poorer quality. The availability of an accessible chat feature in Second World did not translate into inclusion of deaf residents. This finding has implications for educators using virtual worlds, to ensure that technology and tools are designed to support inclusion and eliminate barriers for participation on an equal basis.

Carr (2010) also pointed out the implications for self-description and the need to be aware of the power relationships in provision of services because of the risk that students would describe their disability to meet the criteria of accessibility support services, “a scenario in which staff and students are compelled to experience disability in a manner that conforms to the ‘accessibility support’ that is provided” (p. 58). Carr called for more interactions among disability studies that focus on experiences of students, and for design and accessibility research that focuses on tools and technologies. Such interaction has the potential to result in re-examination of the ways that e-learning and accessibility practitioners conceptualize disability, and could lead to designing e-learning environments that do not perpetuate exclusion and marginalization. According to Carr (2010), to ensure participation in virtual worlds and to enable educators to best use its multi-modal potential for learning, it is not enough to list and match various technologies and ways that persons with certain impairments can use them, as accessibility does not necessarily translate into inclusion. It is important to consider how disability is constructed in virtual interactions and how that construction affects the inclusion of persons with various disabilities.

Recognizing the importance of this pioneer work, the implications of this study should be taken cautiously because of its methodological limitations. The study included only deaf participants in one virtual game, therefore, its implications to virtual learning environments could be questioned. In addition, it is based on the analysis of only five interviews that resulted in 30 pages of transcriptions.

Digital Inclusion, Digital Agility, and Digital Decision-Making

In a participatory research study of students' experiences of e-learning, Seale et al. (2010) developed a conceptual framework to explore digital inclusion of students with disabilities in higher education. The authors researched experiences of on-campus students with disabilities who also studied online and used a range of technologies to support their studies. According to Seale et al. (2010), the experiences of students with disabilities and the role of technology in their academic lives represent an underdeveloped and under-researched field.

Digital inclusion has many meanings and definitions and is often linked to the concept of social exclusion. For some, digital inclusion is "a phenomenon whereby marginalised people, in this case disabled people, are able to access and meaningfully participate in the same learning, employment, social and citizenship activities as other, through access to and use of digital technologies" (Seale et al., 2010, p. 445). Digital inclusion is also described in relation to deficiency terms such as "not having access," or "not being able or not knowing how to use technology," thus implying that providing access to technology and training would have ensured digital inclusion, what would not always have been the case. Seale and her team argued that accessibility within the context of digital inclusion should be expanded to include not only technological factors but pedagogical and institutional ones as well.

Seale et al. (2010) developed a conceptual framework to explore digital inclusion of students with disabilities in higher education. The framework is based on two strands: first, *technology, personal, and contextual factors*, representing the complex, multilayered nature of digital inclusion; and second, *resources and choices*, representing some of the ways in which technological, personal, and social factors express their influence (p. 446). The second strand focuses on resources and choices, namely, digital agility and digital decision-making.

The study found that students with disabilities relied on their digital agility, which they expressed as extreme familiarity with technology, use of a wide range of strategies, and a high level of confidence in their ability to use technology (Seale et al., 2010, p. 450). These findings suggest that students with disabilities had the ability to develop appropriate strategies and adapt the technologies to their needs and circumstances to meet their educational goals. A range of technological, personal, and contextual factors affected their decisions on whether to use technology, from perceived properties of technologies, computer skills, and literacy to feeling stigmatized by using specialized technologies. Their experiences provide insights into the barriers to digital inclusion as conceptualized through digital agility and digital decision-making. These findings have implications for both teaching and support services, as “barriers will not be eliminated by simply improving access or skills” (Seale et al., 2010, p. 455). Concepts of digital agility and digital decision-making as described by the students in the study put them in the driver’s seat. Seale et al. argued that in addition to accessibility barriers that need to be resolved, policies and practices in higher education should encourage and support students based on their strengths to pursue their academic goals.

Digital Capital

The concept of digital capital was explored in an article that aims to illuminate relationships among students with disabilities, technologies they use, and their universities (Seale, 2013). Seale borrowed the concept of digital capital from research on digital inclusion of minority groups. Digital capital is seen through interactions between individuals and social structures. For example, digital capital is the combination of the time one invests in improving technology knowledge and competencies through formal and informal learning opportunities (digital cultural capital), and socialization into technology use through networks of technological contacts such as family, peers, instructors, and media (digital social capital). Seale (2013) applied these concepts in her analysis of data from the previous study, which aimed to identify strategies that students with disabilities used in order to benefit from the potential of technologies (Seale et al., 2010). The technologies studied were standard technologies such as laptops, mobile phones, email, and social networking sites, as well as virtual learning environments, library data bases, and assistive technologies.

Seale (2013) found that although students had a significant amount of both digital cultural and social capital, it did not enable them to fully benefit from technologies. Digital cultural capital was manifested by students' knowledge of technologies; the support they received from families, schools, and colleges; and their participation in formal technology training and education prior to university. An interesting finding was that some students with disabilities, although they had digital cultural capital, made decisions not to invest informally in improving their technology competencies at university because they did not believe that technology would be helpful for their learning. Many had a significant amount of digital social capital, demonstrated by both the online and face-to-face campus-based networks they had. However, for some, their digital social capital did not translate into confidence to navigate university cultures and social structures because of experiences of stigmatization or unsupportive and uncomfortable relationships. The results of this study suggest that digital inclusion of students with disabilities encompasses not only technological but also social and cultural issues.

It is interesting to note that the conceptualization of disability in online environments is not grounded in disability models but in concepts linked to other minority groups, such as digital inclusion. If Seale's articles are examined from the disability model perspective, her arguments about going beyond technology/access and skills and including social and cultural issues are supported by the view of disability as the interaction between an individual with an impairment and his or her environment. Carr (2010) recognizes the importance of cross-disciplinary research and calls for more collaborations among disability studies that focus on experiences of students and design and accessibility research that focuses on tools and technologies.

Empirical Studies on Online Education and Disability

In this section of the literature review I reviewed empirical articles on the intersection of online education and disability that were published in the period from 2004 – 2016. I used 2004 as the cut off year because the first review of this body of literature by Kinash, Crichton, and Kim-Rupnow (2004) was published that year. They reviewed the small amount of literature published from 2000 to 2003 and identified one overarching theme that improving accessibility of online learning for students with disabilities could benefit all students. Kinash and Crichton reviewed the literature again in 2007 and 2013, noting the increase in the number of published articles and the continued struggle of educators and researchers with the question of online education as a vehicle to increase access to higher education for students with disabilities. Their 2007 review included only 17 empirical articles pointing out that research was a recent phenomenon describing the field as “a small body of researchers producing a small body of research largely in their files of concentration” (Kinash and Crichton, 2007, p. 195).

The number of students with disabilities in North American postsecondary institutions has been steadily increasing in the past two decades (Canadian University Survey Consortium, 2016; U.S. Department of Education, 2016). In a recent survey of 34 Canadian universities with more than 15,000 first-year students enrolled, 22% of first-year university students self-identified as having a disability, with mental health being the most commonly reported issue. One-third of students with disabilities reported that they had required accommodation (Canadian University Survey Consortium, 2016). Students with disabilities are not a homogenous single entity but a diverse group of individuals with changing disability identities and variety of learning needs and expectations (Evans et al., 2017; Kim & Aquino, 2017; Peña, Stapleton, & Schaffer, 2016). This diversity challenges educators to improve their understanding of disabilities and differences among them (Peña, Stapleton, & Schaffer, 2016). Although the number of students in postsecondary education continues to grow, students with disabilities do not complete their studies at the same rate as their peers without disabilities, both in face-to-face and online environments (Barber, 2012; Moisey, 2004, Richardson, 2009, 2014). Richardson (2009) investigated whether disability was a factor in the educational attainment of 2,351 students awarded first degrees by the UK Open University. Students with dyslexia, hearing impairment, or multiple disabilities/medical conditions were less likely to obtain a high-level degree than were their peers without disabilities. In 2014, Richardson compared attainment of almost 200,000 students with and without disabilities at the UK Open University. He concluded that, depending on the type of disability, students with disabilities underperformed in various aspects of student success compared to students without disabilities. For example, students with mental health difficulties had poorer course completion than students without disabilities, while students with restricted mobility had both poorer completion rate and lower pass rates than peers without disabilities. Students with learning disabilities had lower pass rates and poorer grades than students without disabilities. This study has implications for the range and type of accommodation and support services that should be available for students with disabilities.

Long, Marchetti, and Fasse (2011) investigated features of learning environments, particularly the level of interaction and its importance for academic success of students who are deaf and hard of hearing and their peers without disabilities. They concluded that students in online courses, particularly those with high levels of interaction, had higher grades and reported greater learning than students in comparable face-to-face courses. Deaf and hard of hearing students reported a greater increase in achievement than did students without disabilities. Findings of this study have implications for deaf and hard of hearing students and could not be extrapolated to other populations of students with disabilities.

Heiman and Shemesh (2012) compared students with learning disabilities with students without learning disabilities at the Open University of Israel in a study of students' use of online courses and how that use contributed to their academic success and social well-being. In comparison to students without learning disabilities, the students with learning disabilities used the course sites and participated in forums more frequently; they felt more comfortable with technologies; and they reported higher motivation to achieve their goals and better subjective well-being. This study underscored the importance of accessible online courses for promoting the academic and social-emotional well-being of students, both with and without learning disabilities. Limitations of this study of over 900 students with and without disabilities is that participants are self-selected, and no differentiation is made between various learning disabilities.

Although students with disabilities generally underperformed students without disabilities in the online learning environment (Barber, 2012; Moisey, 2004, Richardson, 2009, 2014), research that compared students with disabilities in face-to-face and online courses suggested that students with disabilities may perform better in online courses (Stewart II, Mallery, & Choi, 2010). Online learning has created an important opportunity for students with disabilities to pursue higher education if the programs are designed to promote accessibility (Babu & Midha, 2007). This opportunity can be fully utilized only if both environmental and personal factors are taken into consideration when designing online learning. Findings from research on students with learning disabilities by Hollins and Foley (2013) concluded that both environmental and individual factors impact students' performance in the virtual campus. Features of the online learning environment and cognitive and behavioural strategies that students employed in completing tasks online affected their experiences. These experiences ranged from being successful to being unsuccessful in performing assigned online tasks. Methodology used in this study precluded it from making inferences about students with learning disabilities as a population.

The role of environmental factors was explored in a study that compared female students with learning disabilities to their non-disabled peers. Fewer female students with learning disabilities reported that the learning environment was supportive and satisfactory, that services were considerate of their needs, and that they were satisfied with their academic courses than did their non-disabled peers (Heiman, 2008). Roberts, Crittenden, and Crittenden (2011) investigated personal factors and reported that students with disabilities perceived that disability had a negative impact on their ability to succeed in online courses, although a majority stated that their accommodation needs were met. Findings of this study should be suggestive as the methodology and low response rate preclude them to be conclusive. Several studies reported that the technology-related needs of students with disabilities were generally met, although the nature of the disability and the home or learning context affected the extent to which the students' needs were met (Fichten, Nguyen et al. 2010; Fichten, Asuncion et al., 2010; Fichten et al., 2012).

Although Richardson (2009) reported lower educational attainment among students with dyslexia, hearing impairment, and multiple disabilities, his study showed that significant numbers of students with disabilities could achieve good academic results when provided with appropriate accommodation and support. Students who had access to a range of accommodations and disability support services were likely to be somewhat more successful in completing online courses (Moisey, 2004). These studies point out the role of support services in the success of students with disabilities.

Barnard-Brak and Sulak (2010) reported that students with disabilities who studied online did not have significantly different attitudes towards requesting accommodation online from students with disabilities in face-to-face environments. However, they noted that students with visible disabilities had more positive attitudes toward requesting accommodation in the online environment, which might indicate their preference for online studying to avoid stigma and negative interactions with peers without disabilities. This study included only students who registered with the disability support services.

Given that students with disabilities who access more support services tend to have better outcomes, institutions of higher education, including administrators, faculty, and staff, must be aware of their role in enabling students with disabilities to participate and succeed in the postsecondary environment (Belch, 2011). Supporting students with disabilities in higher education involves institutional as well as individual commitment to inclusive and barrier-free education. Based on their survey of 1,591 universities in the United States, Barnard-Brak, Paton, and Sulak (2012) concluded that a positive and significant relationship existed between institutional distance-education goals aimed at improving learning outcomes and the frequency of requests for accommodations by students with disabilities in online courses. Students with disabilities had better access to accommodations when the distance education-related institutional goals were met. A study by Barber (2012), although not focused on the online learning environment, showed that individuals played a major role in academic success of students as perceived by students with disabilities who completed on a campus college. A significant relationship with either an individual Accessibility for Students with Disabilities (ASD) office staff member or a faculty member was a key contributor to the success of students with disabilities, as reported by college completers with disabilities (Baber, 2012).

Knowledge and understanding of disability among faculty and staff have attracted the attention of several researchers. Faculty and staff have different levels of knowledge and understanding of disability as well as of who at the university is responsible for disability and accommodation (Asuncion, Fichten, Ferraro, Chwojka, Barile, Nguyen, Wolforth, 2010; Gladhart, 2010; Phillips, Terras, Swinney, Schneweis 2012). It is reported that while most disability service providers felt confident in their knowledge of disability and accommodation, not all faculty and e-learning specialists were sure of their knowledge and ability to improve accessibility of online courses (Asuncion et al., 2010; Phillips et al., 2012). These results point towards the need for ongoing support and training for faculty and staff. Asuncion et al. (2010) also reported that faculty, disability service providers, and e-learning specialists perceived accessibility as a primary responsibility of disability service providers, potentially revealing the attitude that accessibility is a special-interest issue rather than an institution-wide relevant issue that should be addressed at various levels. Findings of a study of online accessibility in the United States revealed the need to better define who is responsible for online accessibility initiatives and policies at educational institutions (Linder, Fontaine-Rainen, & Behling, 2015). In their exploratory study of e-learning problems and solutions in Canadian postsecondary educational institutions in an online survey involving students with disabilities, disability service providers, professors, and e-learning specialists, Fichten, Ferraro, et al. (2009) reported that there was a need for a comprehensive and collaborative approach for solving e-learning problems. Although the identified problems varied from group to group, the main problems reported by all groups were related to inaccessibility of websites and learning management systems. The authors' findings also underscored the need to ensure that e-learning technologies were accessible and used in a way that facilitates learning for all students with disabilities. They further recommended that higher education institutions make accessibility a priority, ensure the availability of e-learning technology, and provide students and support staff with training on how to use the technology (Fichten, Ferraro, et al., 2009). This study has some important limitations, such as a self-selected sample and a broad definition of e-learning that included the use of technology in classroom-based as well as distance delivery; moreover, most participants were from campus-based Canadian colleges and universities, with only two distance-education institutions included.

Judging by the growing number of publications on disability and online higher education, interest in this topic is increasing, however, the relatively small number of empirical articles published in a wide range of journals reflects the diversity, complexity, and current nascent state of research in this area. The research studies primarily focused on accessibility and technologies in online learning environments, a single disability, the needs for those technologies and associated support services, their relationship to academic achievement, and understanding and knowledge about disability among faculty and service providers. Published empirical articles were authored by a small number of research teams located in Canada, Israel, UK, and USA and often included multiple articles generated from a single study.

In general, the findings of these studies suggest that the online environment offers new opportunities for students with disabilities, if barriers are minimized and/or removed; the more supportive the online learning environment, the greater the benefits for students with disabilities. Meeting the diverse needs of students with disabilities and ensuring the accessibility of online learning are complex and multifaceted tasks, requiring the engagement of multiple stakeholders and appropriate training of faculty and e-learning specialists. Yet despite these findings, there are still many unknowns about the roles of faculty, administrators, and support service personnel and the attainment and experiences of students with disabilities in online higher education. None of the studies in the reviewed literature included a theoretical or conceptual framework, and theories of learning and disability were largely absent. Quantitative methods were predominantly used in the reviewed research, indicating a tendency to rely on one type of research evidence alone. Most studies using quantitative methods had self-selected samples.

Therefore, the findings of these studies should be interpreted with caution, as their generalizability can be questioned. The actual voices of students with disabilities are absent from the research on higher education in general and online higher education specifically; future research should examine the perceptions and actual experiences of students with disabilities.

To gain a better understanding of experiences of students with disabilities in online university programs, I conducted a more targeted search for qualitative evidence, the results of which are presented in the next section.

Lived Experiences of Students with Disabilities in Higher Education

There is a paucity of literature on lived online educational experiences of university students (Kinash and Crichton, 2003, 2007; Seale, 2014), particularly of university students with disabilities. The existing qualitative evidence indicates that the experiences of students with disabilities do not differ greatly from those of their peers without disabilities (Wald et al., 2009). However, Wald et al. (2009) pointed out aspects of experiences that are unique to students with disabilities: the need to learn at the beginning of their university careers about assistive technologies to help them learn; having less time to learn than students without disabilities because of disability related issues; and the need to use technology effectively and in an agile way to assist learning. Students with disabilities were often skillful users of technologies, but materials that were inaccessible or incompatible with assistive technologies presented barriers to their learning (Wald et al., 2009).

It is recognized that online learning creates opportunities for academic participation and success for students with disabilities. Students with disabilities reported that the flexibility of online learning gave them opportunities for academic success (Heindel, 2014; Terras, Leggio, & Phillips, 2015), and they were satisfied with being able to set their own pace with coursework, with having more time to process information, and with having less need to commute (Heindel, 2014). The asynchronous learning environment improved the learning experiences of students with learning disabilities as well as those with Attention Deficit/Hyperactivity Disorder in six areas: clarity, organization, asynchronous access, convenience, achievement, and disability coping mechanisms (Graves, Asunda, Plant, & Goad, 2011). A study of the performance of students with disabilities in a higher education virtual campus showed that participants were both successful and unsuccessful in completing tasks on virtual campus. Their performance was affected by environmental factors such as features of the virtual campus and by personal factors such as their own implementation of cognitive and behavioural strategies (Hollins & Foley, 2013). Seale et al. (2010) called for more research on this complex relationship between learners, their assistive technologies, and online learning environments.

The following section reviews three phenomenological studies of experiences of students without disabilities in online courses, students with disabilities in face-to-face university courses, and students with disabilities taking online courses.

Bambara, Harbour, Davies, & Athey (2009) conducted a phenomenological study of the lived experience of 13 community college students without disabilities who were enrolled in online high-risk courses (HRC) – that is, courses with high withdrawal and failure rates. In their well written article they presented findings of a rigorously conducted study in which they identified four structural themes that marked the experience of participants: *isolation*, *academic challenge*, *ownership*, and *acquiescence*. These themes were constituents of the essence of the experience that Bambara et al. (2009) described as “delicate engagement” – a term “that speaks to the vulnerable threads of academic and social involvement that permeated the HRC student experience” (p. 219). These vulnerabilities were implied in the structural theme of isolation that was marked by the loneliness that participants felt when trying to connect with the course, the instructor, and their peers. The second structure, academic challenge, was described by participants as feelings of being overwhelmed when they faced difficult course content, structure, and technology, as well as their unrealistic expectations of the course. Ownership was articulated by participants as embracing the course with its challenges and demands. The fourth structural theme of acquiescence was represented by slow and gradual giving into loneliness and the demands of the courses, and submission and compromise that led participants to give up ownership of the course. Bambara et al. (2009) recommended several strategies to remove the barriers experienced by students in high-risk courses, including orientation for students about course expectations, level of effort, time, and focus; examination of institutional policies and practices to ensure that student support and academic support services are available; and provision of mentoring and the required participation of instructors in professional development on best practices in online education.

In a phenomenological study from a disability theory perspective, Denhart (2008) looked at experiences of barriers to higher education for 11 college students with learning disabilities who were enrolled in a campus-based institution. The methodology section of this article did not provide sufficient information to fully assess the quality of this study, therefore, the following findings should be interpreted with caution. Barriers were mostly linked with external and social factors rather than personal factors and individual pathology. Denhart (2008) identified the following three barriers as experienced by students with disabilities: being misunderstood by faculty, being reluctant to request accommodation for fear of stigmatization, and having to work longer hours than peers without disabilities. The study suggested that barriers could be removed by improving faculty's understanding of learning disabilities, engaging the assistance of the college learning disability specialists, and increasing the empowerment of students with learning disabilities.

The experiences of higher education students with disabilities in online courses were studied in a phenomenological doctoral dissertation by Heindel (2014). The purpose of his study was to investigate how online learning is experienced by students with disabilities, what factors facilitated or inhibited their online learning, and how instructors' facilitation of online learning was perceived by students with disabilities. Twelve students with various disabilities who attended a campus-based university and who took at least one online course participated in the study. Originally designed as a mixed method study, the project was turned into a phenomenological dissertation because of the richness of the qualitative data. Six major themes emerged from the data: students with disabilities taking online courses liked the flexibility of schedule; they had privacy concerns; they perceived a lack of interaction in online classes; their instructors lacked understanding of disabilities; disability support services did not fully inform them about accommodation options; and the online context allowed them more time to process information. Based on interviews Heindel conducted, he suggested that more training for instructors was needed as well as more collaboration between instructors and offices for disability services in order to proactively address needs of students with disabilities. He called for more research that would bring individual perspectives of students with disabilities to the issue of how to improve online learning. Although this dissertation provides valuable insights into the experiences of students with disabilities who study online, its findings should be cautiously interpreted because of its methodology. This phenomenological study was not initially conceptualized as such, and it seems that methodological fitting within Giorgi's phenomenological method happened after the data was collected what had direct implications for credibility of its findings. In addition, the method chapter of the dissertation did not provide sufficient information about some key elements of every phenomenological study. For example, Heindel did not mention the phenomenological reduction and assuming phenomenological attitude, which are the hallmarks of the Giorgi's method.

These studies provide some commonalities in themes as they relate to students with and without disabilities in online environments, and student with disabilities in online and face-to-face learning environments. Students with disabilities shared a feeling of isolation with students without disabilities in online high-risk courses, as both groups perceived a lack of interaction (Bambara et al., 2009; Heindel, 2014). Students with disabilities in online learning environments had fears of stigma because of disability disclosure, faced a lack of understanding by faculty, and had to spend more time studying than their peers without disabilities (Denhart, 2008; Heindel, 2014; Wald et al., 2009). The three phenomenological studies provide valuable insights into the experiences of three groups of students in different learning environments at institutions of higher education. They also illustrate a paucity of methodologically sound phenomenological studies that report on experiences of university students with disabilities.

The Canadian Policy Environment: Higher Education, Online Learning, and Disability

In previous sections of this chapter, I reviewed the literature to situate my study within the body of knowledge on students with disabilities in online higher education. The way that disability is conceptualized in education and research affects the way that disability programs and services are designed and delivered, and consequently students' experiences. In addition, research has shown a positive relationship between institutional goals and students' requests for accommodations, indicating the role of university policies in shaping the experiences of postsecondary students with disabilities. Keeping in mind the importance of the conceptualization of disability as well as overall policies, I reviewed the relevant Canadian policies and legislation and looked at their potential impact on postsecondary students with disabilities.

In this section I present a summary of a review of 67 Canadian policy documents pertaining to postsecondary students with disabilities related to human rights, postsecondary education, online education, disability, and accessibility at the federal, provincial, and territorial levels. The review of policies is informed by different models of disability presented in earlier sections of this chapter. The purpose of this review is to map out the policies that regulate the field of online higher education for students with disabilities. Since these policies shape the educational practice and consequently the experiences of students with disabilities, this policy review was a necessary step in situating this study, as policies determine who is in, who is out, who has access to support, and who has not.

In 2010, Canada signed and ratified the United Nations (2008) Convention on Rights of Persons with Disabilities (CRPD), taking responsibility for ensuring the protection and promotion of rights of persons with disabilities, including rights to education and accommodation. The CRPD is an international legal instrument that focuses exclusively on the human rights of persons with disabilities, because other human rights conventions did not sufficiently protect the rights of this group. Article 24 of the CPRD explicitly deals with education, including equal access to tertiary education without discrimination and with reasonable accommodation when necessary (United Nations, 2008).

At the national level, the Canadian Human Rights Act, cH-6 (1985) and the Canadian Charter of Rights and Freedoms (1982) were introduced to ensure human rights and equity and to guarantee the reasonable accommodation of the needs of people with disabilities. Section 15 (1) of the Charter (1982) guarantees equality before and under the law, as well as equal protection and benefit of the law without discrimination based on race, national or ethnic origin, colour, religion, sex, age, or mental or physical disability. The Canadian Human Rights Commission (2012) explains the *duty to accommodate* as an obligation of an employer or service provider to take steps to prevent or reduce discrimination against employees or service users on prohibited grounds of discrimination. Employers or service providers can claim undue hardship by providing evidence of the nature and extent of that hardship in cases where accommodation might be too expensive or might present risks to health and safety.

Human rights legislation at the federal, provincial, and territorial level applies to postsecondary education and students with disabilities, guaranteeing only the right of persons with disabilities to have an equal opportunity to participate in postsecondary education through reasonable accommodation and the removal or minimization of barriers. In contrast to primary and secondary education, which is regulated by separate provincial and territorial laws, institutions of postsecondary education are not obliged to provide accommodation that would significantly change the essential requirements of a course or exam (Harrison, Lovett, & Gordon, 2013). Hanes, Schwartz, and Werk (2011) observed that postsecondary students with disabilities have a right to equal education *opportunity* but not a right to equal education *outcomes*.

Postsecondary education falls within provincial and territorial jurisdiction, although the federal government can exercise different levels of influence over postsecondary education in the provinces and territories through a variety of funding mechanisms. These include budgetary transfers to provinces, funding for territorial ministries of advanced education, direct funding to universities for research, and student financial assistance programs, including programs for students with disabilities (Fisher et al., 2006). These federal programs are available throughout Canada and are administered by the provinces and territories.

Canada may be the only country in the developed world that does not have national postsecondary education legislation (Fisher et al., 2006). The same applies to e-learning (McGreal & Anderson, 2007). Canada's Council of Ministers of Education Advisory Committee for Online Learning (2001) prepared a report to expand online learning in the 21st century that clearly identified opportunities for improving accessibility of postsecondary education for students with disabilities. More than a decade later, the Canadian Virtual University (2012) reported that the Canadian online learning landscape was still facing many challenges, including a lack of national data and strategy, lack of cross-jurisdictional collaboration, and lack of resources targeted for online university education. However, the same report pointed out the opportunities that online education offered to underrepresented students, including students with disabilities.

Like postsecondary education, disability and accessibility policies are a uniquely Canadian mix of federal, provincial, and territorial jurisdictions rooted in human rights legislation. At the core of these policies are equal access without discrimination and a duty to accommodate. The policy environment at provincial and territorial levels mirrors that at the federal level. The relevant laws and policies are provincial and territorial human rights acts, postsecondary education regulation, and student financial assistance programs. While human rights legislation and student financial assistance explicitly mention disability, regulations pertaining to postsecondary education do not. There is no provincial legislation regulating online learning. Generally, provincial governments have provided frameworks to guide the development of online initiatives in the postsecondary sector. Given that students with disabilities are guaranteed the right of equal access to services under human rights legislation, these initiatives should be fully accessible.

Only Ontario and Manitoba have regulated accessibility for persons with disabilities by passing the Ontarians with Disabilities Act, c32 (2001), the Accessibility for Ontarians with Disabilities Act, c11 (2005), and the Accessibility for Manitobans Act, CCSM cA1.7 (2013). These acts regulate accessibility but do not explicitly mention access to education. They consider postsecondary education as a service that must be made fully accessible, including the provision of accessible physical environment, materials, and processes. Accessibility of online learning, like accessibility of education in general, falls under provincial and territorial human rights legislation focusing on the elimination of discrimination by removing barriers and providing accommodation. Eligibility for accommodations is mostly based on a diagnosis of the disability by a professional, usually a physician or a psychologist. Various definitions of disability are used in federal, provincial, and territorial legislation and policies. While they differ in details, most are impairment and medically based, and reflect the conceptualization and model of disability prevalent at the time the law or policy was created. Depending on the purpose of the law or policy, definitions may be broad or restrictive. Human rights legislation at both the federal and provincial levels is less restrictive and more inclusive, whereas laws that define benefits are much more restrictive. Accessibility legislation in Ontario provides a detailed definition of disability, while the Accessibility for Manitobans Act (2013) defines only barriers.

Policy Paradoxes

The Canadian policy environment in which postsecondary students with disabilities study online is a patchwork of legislation and policies at different jurisdictional levels regulating different sectors. The main purpose of the legislation and policies is equity through elimination of discrimination and removal of barriers to improve access to institutions of postsecondary education. Clear enforcement mechanisms are commonly absent from the policy or legislation, leaving its implementation and compliance to the institution, or for cases of non-compliance, to individuals with disabilities to claim their rights in a court of law. This is one of the policy paradoxes discussed in this section. Stone (2012) defines a policy paradox as coexisting contradictory interpretations, a situation that does not seem possible but indeed is. It often happens in political life.

Purpose paradox. The reviewed policies were mostly related to human rights, equitable access, and removal of barriers. Human rights are inherent to all human beings. However, for persons with disabilities to claim their human and citizenship rights, they first must identify themselves as different human beings, and claim their disabled group identity (Stone, 2012). Based on this group identity, they can then fight for their rights individually in a court of law. With this paradox of purpose, persons with disabilities are the same and different at the same time.

Definitional paradox. Many definitions of disability were used in the reviewed policy documents, as no single definition of disability fully captures the multiplicity and diversity of experiences (Law Commission of Ontario, 2012). Having a single definition may not be possible, and it may not be desirable. In the policy arena, based on a specific definition of disability, decisions are made on whether an individual is eligible and has access to resources. The same person can have a disability in one jurisdiction but not in another.

Philosophical paradox. The human and citizenship rights approach to disability policy issues is rooted in the human rights model of disability that grew out of the social model. While the overall human rights approach recognizes both the individual and social aspects of disability, actual human rights laws reflect the medical model and use an impairment-based definition of disability.

Labelling paradox. Existing policy documents prescribe that access to resources for persons with disabilities depends on receiving a label or diagnosis in order to obtain a confirmation of the disability from a professional. Receiving the diagnosis of mental illness can be stigmatizing on one hand, but on the other it can lead to better understanding of the problem and better access to services (Shakespeare, 2006). As such, labelling can be both stigmatizing and empowering.

Decision-making paradox. Despite the common understanding of disability as a complex and evolving concept that encompasses both individual and social elements, the medical model remains at the core of the current policies and programs. Although not trained in delivery of social services, medical professionals have decision-making power over the distribution of non-medical resources including social assistance, housing, technology, and education, to name just a few. In addition, research by Harrison, Lovett, and Gordon (2013) revealed that clinicians tended to have little knowledge of the meaning of functional impairment and the differences between laws governing academic accommodation of children in primary and secondary education and those governing adults in postsecondary education. Medical professionals have disproportional control over the lives of persons with disabilities because they have decision-making authority over the allocation of non-medical resources, which they usually do not have in the case of persons without disabilities.

Evidence paradox. Evidence-based policy-making has a long history as governments aim to make policy decisions based on the best available information collected in a systematic and unbiased way. Although technological advances have simplified access to data and information, basic aggregated information (e.g., the number of students with disabilities at postsecondary institutions or the number of students studying online) is not readily available across the country. Thus, evidence-based policy-making is being done in this area without readily available evidence.

The uniqueness of the Canadian postsecondary education, disability, and accessibility policy environment lies in the interplay of separate federal, provincial, and territorial legislation. These policies and legislation, although complicated by issues linked to crossing jurisdictional and sectoral boundaries, have allowed for the advancement of disability rights in general and improved access to postsecondary education for students with disabilities in particular.

For those who are willing to comply, the existing policy framework is sufficient. Non-compliance, however, typically results in stalled or delayed implementation. Recognizing the paradoxes of the current policy environment is important in order to look for innovative policy solutions to address complexity, intersectionality, and diversity of disability issues and students' needs related to postsecondary education. The current policies create the overall positive environment at a very general level and in most cases, do not present obstacles. However, policies still lack clear enforcement, administration, and monitoring mechanisms that would create a more positive and inclusive environment. The fragmentation of the Canadian policy landscape, as well as the lack of basic data consolidated at federal, provincial, and territorial levels, slows ongoing evidence-based policy development. As Fuller et al. (2004) have pointed out, we need to look for evidence – listen to the voices of disabled students – in order to make postsecondary education truly inclusive.

At the provincial/territorial level, the duty to accommodate is interpreted through government-issued bulletins that interpret national legislation for employers and service providers. Based on the granted accommodations reported in the literature, the duty to accommodate in the postsecondary sector usually involves the provision of a set of prescribed interventions.

Despite advances in the implementation of human rights and accessibility legislation, as well as the availability of accommodations, students with disabilities still face barriers in accessing postsecondary education. Students with disabilities, like all students, may face barriers related to factors such as parental education, university readiness, motivation, family income, and costs (Finnie, Wismer, & Mueller, 2015; Standing Senate Committee on Social Affairs, Science and Technology, 2011). In addition, however, students with disabilities must deal with inaccessibility of the infrastructure, inappropriate teaching and assessment strategies, negative attitudes, disclosure concerns, and additional disability-related expenses (Fichten et al., 2009; Fuller et al., 2004; Nicholls, Li , Leslie et al., 2012; Standing Senate Committee on Social Affairs, Science and Technology, 2011).

While recognizing that Canada has the most educated population in the world, the Standing Senate Committee on Social Affairs, Science and Technology (2011) suggested that efforts were needed to improve access for traditionally underrepresented groups in postsecondary education, including Aboriginal peoples, persons with disabilities, first-generation students, students from rural or remote areas, and students from low-income families. Particularly, enabling policy development is necessary to ensure the removal of barriers to postsecondary education for students with disabilities.

Exploring Theoretical Underpinnings

The final section of this chapter presents a review and discussion of the theoretical frameworks that were considered in order to situate this study within a broader theoretical framework. Like the overall literature review, the review of the theories and theoretical literature poses a challenge for a researcher who conducts a phenomenological study to ensure that a specific theoretical framework or view is not imposed, and data *forced* into it. Therefore, I have included this section as the last section of the literature review as an exploration of theoretical underpinnings rather than as a separate chapter of the thesis.

Based on the gaps in the literature and on my personal interest in finding out about experiences of students with disabilities in online university programs, I was directed towards a phenomenological philosophy and research method. Finding that the literature is characterized by the absence of students' perspectives, comparative neglect of learning and disability theories, reliance on mostly quantitative evidence, and a focus on technology and support services, I was inspired to explore how, at the theoretical level, phenomenological fundamental thematic structures overlap with concepts of interactions in distance education and the disability human rights model. My attempt to pull together a theoretical framework is a personal journey of sense-making, reflection, and exploration to articulate a theoretical framework, focus the research question, develop an interview guide, situate my work theoretically, and *let it go* in a process of bracketing.

Phenomenology and Four Life Existentials

In phenomenological literature, the following four essential structures of any experience are identified: lived space, lived body, lived time, and lived human relations (lived other) (Van Manen, 1997). These four categories are fundamental structures of the life world (Merleau-Ponty, 1962). They are always present in an intricate unity. Lived space, also known as spatiality, refers to felt space – space that affects feelings. For example, in an online learning environment, an asynchronous session may be a space in which one feels safe, included, and connected. Lived body, or corporeality, refers to the fact that one is always present in his or her physical body. Van Manen (1997) states, “In our physical or bodily presence we both reveal something about ourselves and we always conceal something at the same time – not necessarily consciously or deliberately, but rather in spite of ourselves” (p. 103). For example, once in the centre of attention, the body and body motions may appear clumsy or graceful (Van Manen, 1997), or in case of students with disabilities, can be related to the issue of disclosure. Lived time, or temporality, refers to subjective time as opposed to objective (clock) time. Lived time is about feeling that time flies by quickly or slows down, depending if something is interesting or boring. Lived human relations, lived other, or relationality, is the lived relation one has with others, in the shared space and through bodily presence.

Learning interactions: Adapted Moore’s framework

Interaction has been a dominant concept in theorizing distance education. In a 1989 editorial in the *Journal of Distance Education*, Moore recognized the absence of agreement on a single definition and stated that there were three types of interactions in distance education. He labelled them as learner-content, learner-instructor, and learner-

learner interactions. There are multiple definitions of interaction, and in this research I use the definition of interaction as “a dialogue or discourse or event between two or more participants and objects which occurs synchronously and/or asynchronously mediated by response or feedback and interfaced by technology” (Muirhead & Juwah, 2005, p. 12). This definition of interaction encompasses types of interactions conceptualized by Moore (1989) and Hillman, Willis, and Gunawardena (1994). Moore described learner-content interaction as learner interaction with the subject matter of study. It is an essential characteristic of education. He stated that the didactic text was the oldest teaching form that facilitated the learner-content interaction, which expanded to other modes (text, picture, sound, video) and media (radio, television, Internet). Learner-instructor interaction is interaction between the learner and the content expert who prepares curriculum, learner-content interactions, and resources. The instructor motivates students, presents materials, facilitates the application of what has been learned, and evaluates learners. This type of interaction is highly valued by students but is expensive and difficult to scale up (Anderson, 2003; Joksimović, Gašević, Loughin, Kovanović, & Hatala, 2015; Moore 1989). Learner-learner interaction is communication among learners, individually and in a group, without the presence of the instructor. Moore (1989) points out that this type of interaction is a valuable resource for learning. Hillman et al. (1994) expanded Moore’s framework by adding learner-interface/system as the fourth type of interaction, because in online learning environments the other three types of interactions are mediated by technology.

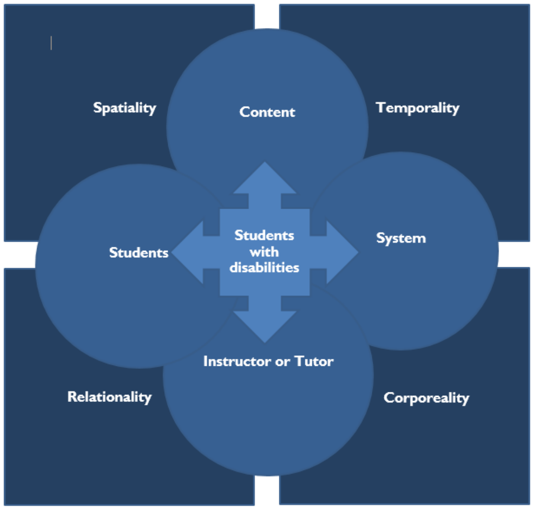
Human Rights Model of Disability

As discussed earlier in this chapter, the human rights model recognizes disability as a human rights issue and recognizes persons with disabilities as equal citizens who are guaranteed equal rights, opportunities, and responsibilities. The United Nations' (2008) Convention on Rights of Persons with Disabilities (CRPD) is an international legal instrument that ensures equal rights for all persons with disabilities. At the core of the CRPD is the view that disability is a result of an interaction between persons with disabilities and their environment. This view of disability is elaborated by WHO (2001) in the International Classification of Functioning, Disability and Health (ICF), which recognizes individual experiences of disability that encompass body structures and body functions, activities, and participation, as well as environmental factors such as products and technology, the natural environment and human-made changes to environment, support and relationships, attitudes, services, systems, and policies.

By overlaying the disability model with the expanded Moore's interaction framework, students may experience disability in an online learning environment when they interact with content, instructors, peers, and systems if any of the above-mentioned personal and environmental factors prevent them from full participation. The four essentials of lived experience can be used to explore the experience of students with disabilities, as space, time, body, and relations are relevant for studying online anywhere, anytime.

These three theoretical frameworks, which include four phenomenological existentials, four types of interactions in distance education, and disability as a result of interactions among individual and environmental factors, are compatible and applicable to disability and online learning. Figure 1 is a visual representation of an interplay between these three theoretical frameworks.

Figure 1. Theoretical frameworks



In the initial phase of my research, the exploration of theoretical underpinnings helped me situate my study within a broader theoretical landscape. During the study, in the data collection phase, it assisted me in the process of bracketing and being aware of both theories and my personal views, while in the data analysis stage I used the theoretical backdrop of four types of interactions to sharpen my disciplinary focus as part of the phenomenological reduction. Finally, in the closing chapters of the dissertation, I used it to re-examine the findings in the light of these frameworks and reflect on the contribution of my research to the field of online education for students with disabilities.

Chapter 2 Summary

The aim of this chapter was to situate the phenomenon under investigation within the current research, policy, and theoretical landscape. Recognizing that phenomenological research is not theory-driven and therefore the literature review should be somewhat limited, I decided to conduct a review of the literature on the intersection of disability, higher education, and online learning from research, policy and theoretical perspectives. Initially, this review helped me define and situate my study, bracket what was known and what I knew, maintain the disciplinary focus as part of phenomenological reduction in the analysis phase, and in the final stages of the study, contextualize the findings and its implications.

Different models are used to describe disability, but there is no universally agreed definition. Disability, a result of an interaction between individual and contextual factors, is an evolving concept. It is also a social construct that is contextual, situational, and relational in nature. In the online environment, disability is conceptualized using models linked to digital inclusion of minority groups rather than from a disability studies perspective. The way that disability is conceptualized is important, as it shapes how disability is operationalized in the research, and how services are developed to address the disability issues.

The number of postsecondary students with disabilities is growing, but their academic attainment is lagging behind that of their peers without disabilities. Online education has created new postsecondary educational opportunities for students with disabilities. Studies suggest that students with disabilities may even perform better in online courses than in face-to-face ones. They also performed better in online courses if they used disability support services, and some performed better when courses were more interactive. Both individual and environmental factors have impacts on the performance of students with disabilities, including the type of disability, access to accommodations, and relationships with faculty and support personnel, as well as institutional goal, attitudes, and knowledge about disability and accommodations among faculty and service providers. Students felt that their technological and accommodation needs were generally met. The main barriers to studying online are inaccessibility of websites and learning management systems. Although there is a growing body of knowledge about students with disabilities in online learning environments, many areas in the field are still under-researched. The existing research is very diverse, atheoretical, and dominated by quantitative methods with self-selected samples, making it difficult to establish an evidence base.

The lack of qualitative evidence prompted me to conduct a targeted search of qualitative studies presenting experiences of students with disabilities. I found a paucity of qualitative research on lived experiences. Three qualitative studies that I reviewed reported that students with disabilities have experiences that are not greatly different from experiences of students without disabilities. However, students with disabilities must learn to use assistive technologies; they have less time to study because of disability related issues; and they need to use technology in agile and effective way. Most are skillful users of technologies, but inaccessible technologies and materials are barriers to their learning. Students with disabilities reported that the flexibility of online learning gave them opportunities for academic success. They were also satisfied with being able to set their own pace, having more time to process information, and having no need to commute. They also had privacy concerns, and they felt a lack of interaction in online classes, a lack of understanding of disability among faculty, and a lack of information about disability support services. Students with disabilities who studied on campus identified barriers including being misunderstood by faculty, being reluctant to request accommodation for fear of stigmatization, and having to work longer hours than peers without disabilities.

Postsecondary students with disabilities study online within a policy environment that is characterized by the interplay of federal, provincial, and territorial legislation on higher education, disability, accessibility, and human rights. Despite the complexity of the policy environment linked to crossing jurisdictional and sectoral boundaries, these policies have enabled the advancement of disability rights and improved access to higher education for students with disabilities. Although the policy environment is positive overall, policies lack clear enforcement, administration, and monitoring mechanisms, leaving it up to individuals with disabilities to fight the violation of their rights in the court system.

My study is informed by three theoretical frameworks: four phenomenological existentials, four types of interactions in distance education, and disability as a result of interactions among individual and environmental factors. These frameworks are compatible and applicable to disability and online learning.

As a researcher using phenomenological methods, I grappled with the question of how much of the literature review and theoretical conceptualization was enough from a phenomenological perspective to avoid compromising openness to the phenomenon as it presented itself (Vagle, 2014). The literature review helped me to focus my study and to identify what is known in order to be able to engage in a conscious act of bracketing, maintaining the disciplinary perspective, and situating my study within a broader theoretical context.

CHAPTER 3: METHODOLOGY

In this Chapter I present the Giorgi's descriptive phenomenological method used in this study to investigate experiences of students with disabilities in online university programs. I provide the details of the research design and document the research process including the discussion of key decisions made in course of conducting this research.

Phenomenon under Investigation

The 21st century is seeing the proliferation of online higher education opportunities, accompanied by growing interest in research into online learning, particularly aspects related to interaction. Moore (1989) described interaction as an essential aspect of distance education in his conceptual framework – one of the most frequently cited in studies of online education (Bozkurt, Akgun-Ozbek, Yilmazel, Erdogdu, Ucar, Guler, ... & Dincer, 2015). Interaction is also a key to understanding disability, as disability is not seen as an attribute of a person but a result of the interaction between individuals with impairments or health conditions and attitudinal and environmental barriers that prevent them from full participation (Shakespeare, 2006; WHO, 2001; UN, 2008). As discussed in previous chapters, there is a paucity of literature on the lived experiences of students with disabilities in online programs. This study aimed to address the identified gap in the literature by investigating experiences in online university programs for undergraduate and graduate students with disabilities, particularly their experiences related to interaction.

The general research literature on online learning and students with disabilities is extremely diverse. It includes different populations of students with disabilities and different educational interventions, and employs a variety of mostly quantitative research methods to study them. Consequently, it is difficult to establish the evidence base in this area of online education. Research is in a nascent and exploratory stage, characterized by *silences* of key stakeholders, including students with disabilities (Seale, 2014). This study brings to light the shared experiences of online learning interactions for students with disabilities, contributes new knowledge to addressing the gap identified in the literature, and helps to shape policy and practice. To capture these shared experiences, I selected descriptive phenomenology as the research method because it was intentionally developed to describe how a number of individuals experienced a specific phenomenon (Creswell, 2013). The study addressed the main research question: What is the structure of experience of interaction for undergraduate and graduate students with disabilities who study online? It also addressed two sub-questions: What are their experiences of interactions with content, instructors and/or tutors, other students, the university system, and support services? What are the barriers and facilitators that shape the online learning experiences of students with disabilities?

Theoretical Foundations of the Research

Answering the main research question and sub-questions began with an examination of the theoretical foundations of the research and the research paradigm that would guide the study. A research paradigm is a set of basic beliefs or assumptions, as well as the worldview that defines the nature of the world and an individual's position in it (Creswell, 1998). Creswell (1998) associates the research paradigm with five types of philosophical assumptions: the researcher's ontological, epistemological, axiological, rhetorical, and methodological assumptions. These form the theoretical foundations of the research. Therefore, at the outset of this research, I examined my philosophical assumptions as described in the sub-sections below.

Ontological and epistemological assumptions

The basic ontological and epistemological questions are about the nature of reality and the nature of knowledge (Creswell, 1998). This study is informed by phenomenology, which is both a philosophy and a research method. The phenomenological philosophy of Husserl and his followers paved the way for phenomenology as a research method, first in psychology and then in nursing, health care studies, education, and other disciplines.

Edmund Husserl (1858–1939) is considered the father of phenomenology; he developed phenomenology as a pure science of ideas at the beginning of the 20th century (Giorgi, 2009). Generations of philosophers were influenced by his philosophy in which he attempted to establish a scientific method for philosophical inquiry. Husserl's own thoughts evolved over time in response to critiques of his philosophy, sometimes making it difficult for non-philosophers to comprehend (Giorgi, 2009). Towards the end of his career, he defined phenomenology as the exploration of the totality of the world, or *life world* as he called it. Phenomenological philosophy is the study of how the world appears to us in terms of our subjective experience and our conscious awareness. Giorgi (2009) defines phenomenology as a philosophy that aims to "understand anything at all that can be experienced through the consciousness one has of whatever is *given* – whether it be an object, a person, or complex states of affairs – from the perspective of the conscious person undergoing the experience" (p. 4). In this view, experiences are the main source of knowledge (Dowling, 2007).

Although there are many philosophical approaches to phenomenology for a researcher to consider (Embree, 1997), are two classical approaches: hermeneutic or interpretive phenomenology, and transcendental or descriptive phenomenology. These approaches are rooted in the work of German philosophers Heidegger and Husserl, respectively.

While both approaches are concerned with lived experiences, Heidegger's hermeneutic or interpretive phenomenology is based on the concept of being in the world, rather than knowing the world. Heidegger's interpretive phenomenology is about manifestations of phenomena that present themselves through intentional relationships that are constantly interpreted (Vagle, 2014). Heidegger was interested in interpreting human experience based on the philosopher's prior understanding, without suspending previous experiences, knowledge, and biases. Heidegger believed that understanding a phenomenon was based on the plausible interpretation of its manifestations, because the act of perceiving a phenomenon was an interpretation in itself (Reiners, 2012; Vagle, 2014).

The second classical philosophical approach, transcendental or descriptive phenomenology, focuses on descriptions of essences of the lived experience as perceived by the experiencer (philosopher) while all prior knowledge and biases are suspended (Reiners, 2012). Since my dissertation research study aimed to describe the essential structure of experience of interaction for undergraduate and graduate online learners with disabilities, the descriptive phenomenological tradition of Husserl and others was used as the guiding philosophy. Some of the key philosophical concepts of Husserlian phenomenology, which inform Giorgi’s (2009) descriptive phenomenological research method, are defined below.

Essence or eidos. Essences are necessary and unchangeable characteristics of an experience that make the experience what it is. These invariant characteristics must belong to the phenomenon “if it is to appear as a phenomenon of a given type” (Giorgi, 2009, p. 84).

Natural attitude. The natural attitude is the usual way in which human beings perceive reality, based on the belief that the reality is separate from their subjective experience of that reality. It is an attitude in which things are taken for granted as they present themselves in the world (Giorgi, 2009).

Phenomenological attitude. The phenomenological attitude allows the philosopher to look at an experience from the perspective of consciousness. This attitude suspends the natural attitude by recognizing it is as just a belief. To assume the phenomenological attitude, the philosopher must look at “the objects of consciousness from the perspective of pure, essential consciousness, which means a consciousness that is not limited by any existing forms of it” (Giorgi, 2009, p. 88). For example, a child may believe that Santa Claus will bring presents; although Santa Claus is not real, the child’s perception of and belief in Santa Claus are experiences that can be phenomenologically examined (Giorgi, 2009).

Epoché or bracketing. Epoché or bracketing is the process of suspending the natural attitude and assuming the phenomenological attitude by focusing on the consciousness that constitutes the experience. As the natural attitude is often based on past experiences, epoché is the process of bracketing all past experiences, knowledge, assumptions, theories, views, and judgements. It is not forgetting past experiences, but suspending them. Although this philosophical process might sound difficult to achieve, bracketing is common in everyday life. For example, in a criminal trial, jurors may hear non-admissible evidence, but must not take it into consideration when deciding on the guilt or innocence of the defendant (Giorgi, 2009). In education, instructors use bracketing when they evaluate a student they know and have expectations about his or her performance.

Phenomenological reduction. According to Husserl, phenomenological reduction is the procedure of separating the phenomenon under investigation from the qualifications imposed either by existing knowledge or theoretical framework or by the investigator. The *Internet Encyclopedia of Philosophy* (n.d.) defines phenomenological reduction as having two moments: epoché, and the reduction proper. While epoché is a suspension of the natural attitude toward a phenomenon, the reduction proper is consciousness about that process and the recognition that it is consciousness about the phenomenon and not an absolute. For example, from the viewpoint of natural attitude, an hour of time is simply 60 minutes. If the natural attitude is suspended, an hour can be experienced as much longer if something boring is going on, or as very short if something interesting is happening. The meaning of time differs depending on whether it is being perceived from a natural or a phenomenological attitude. The process of setting aside the natural attitude allows one to look at the subjective experience of an hour.

Eidetic reduction. Eidos is a Greek word meaning essence (Giorgi, 2009). After phenomenological reduction brings the focus on consciousness of the experience, eidetic reduction is performed by focusing on the essences of the experience, that is, the structures that make the experience what it is.

Imaginative variation. In phenomenological philosophy, a key method in eidetic reduction is imaginative variation, which examines the structures of experience from different perspectives. The inquirer relies on his or her intuition, imagination, and universal structures (relations to self, others, time, and space), and varies the attributes of the experience to determine its key, essential, invariant, and necessary structures that make experience what it is.

Intentionality. Intentionality in phenomenological philosophy is an act of consciousness that is always directed towards an object. Intentionality is also called *noesis*, and the object of intentionality is called *noema*. Intentionality is about a subject doing something and towards something, an object of that action. Reality of the object is always linked to consciousness of that object. Intentionality bridges the duality between subjects and objects, as objects exist in the consciousness of subjects (Creswell, 1998).

Axiological Assumptions

Axiological assumptions deal with the position of values in the research. Research is value laden, and the researcher cannot be a distanced, objective, and unbiased observer (Creswell, 1998). Bracketing as practised by researchers using a descriptive phenomenological method is adapted from the philosophical phenomenological reduction discussed above. It allows researchers to reflect on their own values, views, beliefs, prejudices, judgements, and knowledge. In this reflective process of acknowledging their own experiences, researchers suspend or bracket them, and open themselves to the experience of the phenomenon under investigation as presented by the participants. Bracketing is a fundamental part of descriptive phenomenology as a research method.

In this dissertation research study, I used bracketing to set aside power relations, my judgements, assumptions, theoretical explanations and views, in order to look at “the ongoing occurrences as they are unfolding” (Giorgi, 2009, p. 91). Giorgi (2009) warns that it is impossible to execute complete bracketing, and calls for “a shift in attitude so that one can be fully attentively present to an ongoing experience rather than habitually present to it” (p. 91).

Rhetorical Assumptions

Rhetorical assumptions are linked to the use of language in qualitative inquiry in which researchers embrace a personal and literary form. Two aspects of rhetorical assumptions were relevant for my dissertation research: use of people-first language when talking about disability, and use of the first person (“I”) to write about the qualitative research.

Recognizing the debates over the language preferences when discussing disability (e.g., *disabled people* versus *people with disabilities*), I used people-first language in this dissertation. This style is widely used in North America by disability advocacy groups and governments (Human Resources and Skills Development Canada, 2006), as well as in Convention on Rights of Persons with Disabilities (United Nations, 2008). People-first language puts persons before their disabilities, emphasizing their personhood. (Note that people-first language is not used when quoting; all words in quotations appear as they are in the original.)

I also used first-person language, the personal voice, and a qualitative research vocabulary when writing about my thought processes and actions I took during the research (Shelton, 2015). These were all in line with a qualitative, narrative tradition, and are recommended by the American Psychological Association (2010).

Methodological Assumptions

My methodological assumptions dealt with the choice and use of an appropriate approach to the research and answered the question “What is the process of research?” My methodological assumptions were aligned with my ontological and epistemological assumptions (Creswell, 1998, p. 75). Based on the research purpose and questions, I selected the descriptive phenomenological method to describe the experience of interaction in online university programs for undergraduate and graduate students with disabilities.

The theoretical foundations of this research reflected my philosophical assumptions that shaped the worldview I brought to the study. Phenomenology as a philosophy is about an understanding of consciousness, experiences, and the structures of the human lifeworld -- our ordinary, common, everyday life. Descriptive phenomenology as a research method is rooted in Husserlian phenomenological philosophy and includes a series of steps and actions that reflect key philosophical concepts and actions. These are described in the next section.

Research Design

I selected the qualitative research tradition and the descriptive phenomenological method as the research design to describe the structure of experience of interactions for undergraduate and graduate students with disabilities who study at an online university.

As the purpose of my study was to describe the structure of experience, I selected the descriptive method over the interpretative phenomenological research method that would have resulted in the explanation of or interpretation of the phenomenon “as pointing out the meaning of something by imposing an external framework” (Finley, 2009, p. 11). Interpretative phenomenological methods use assumptions, theories, and hypotheses to articulate the phenomenon, and resolve ambiguities and contradictions in the lived experience. They are also used to interpret meanings in relation to a phenomenon (Willis, Sullivan-Bolyai, Knafl, & Cohen, 2016).

Descriptive phenomenological research method, rooted in Husserlian phenomenology, was used to describe the phenomenon under study while bracketing biases and previous knowledge (Reiners, 2012). Descriptive phenomenology focuses the precise description of the essence rather than on its interpretation (Giorgi, 2009). Giorgi states that “The descriptive phenomenological attitude neither adds to nor substracts from what is ‘given’ (p. 78)”.

Descriptive phenomenology aims to identify what constitutes a phenomenon in order to understand the structure of the experience in its wholeness. It examines a phenomenon from many perspectives until a common structure of a phenomenon or experience is achieved (Creswell, 2015; Giorgi, 2009; Moustakas, 1994).

Descriptive phenomenology is based on the assumption that “we can only know what we experience” (Patton, 2002, p.105). Since the aim of this study was to describe the structure of experience of interactions for students with disabilities in online university programs, a descriptive phenomenological research method was considered a more suitable choice (DePoy & Gitlin, 1998; Giorgi, 2009).

Rationale for Research Design

Descriptive phenomenology is a suitable method when the phenomenon is under-studied, as is the case of students with disabilities in an online higher education environment. Capturing the experiences of students with disabilities and developing thick descriptions can help to identify key structure and its constituents from students' perspectives.

Perspectives and experiences of students with disabilities are largely missing from the contemporary studies of online education. The literature is dominated by quantitative research, largely focused on a specific program or service, and does not illuminate the unique experiences of this group. Furthermore, to date, researchers in online education have spoken for students with disabilities, identifying what they thought were issues for these students, without asking them and without giving them opportunities to express their authentic views (Seale, 2014).

For this study I selected descriptive phenomenological method according to Amedeo Giorgi (2009) after I had compared it with other descriptive phenomenological methods as modified by Moustakas (1994). The Husserlian philosophy was the philosophical grounding for both Giorgi and Moustakas. Philosophical underpinning, purpose, and the data collection methods were similar. However, Giorgi and Moustakas differed in the application of philosophical concepts to the human science research methods and in the steps for analyzing phenomenological data. Giorgi descriptive phenomenological method was an empirical-psychological approach while Moustakas aimed to articulate a transcendental phenomenological approach (Applebaum, 2013).

In his book Phenomenological Research Methods, Moustakas (1994) provided in-depth philosophical discussion of Husserlian phenomenology but he was less explicit in discussing how philosophical concepts were turned into the research methods he described. He modified two methods Van Kaam's (1959, 1966) and Stevick-Colaizzi-Keen's (Stevick, 1971; Colaizzi, 1973; and Keen, 1975) method, and provided steps and examples for each one. Both methods resulted in the description of the experience for all participants that emerged through the narrative and thematic analysis. Since I had conducted a descriptive phenomenological study according to Moustakas in the past, I looked for an alternative descriptive phenomenological method that would provide more guidance on application of philosophical concepts and procedures to a rigorous research study.

Giorgi devoted 50 years of his career to developing and refining his descriptive phenomenological method. In his book the Descriptive Phenomenological Method in Psychology, Giorgi (2009) provided a detail account of philosophical grounding of his method. He also described and justified how he adapted philosophical approach to be used as a rigorous research method in psychology. He described each step in the research process and provided examples of the analysis and reporting. Giorgi's method calls for the analysis of the naïve descriptions "within a disciplinary attitude and phenomenological reduction with a special sensitivity to the phenomenon being investigated" (Giorgi, 2009, p. xiv). The disciplinary attitude makes Giorgi's method applicable to various disciplines, and made his method applicable to the educational study that I intended to conduct. I also appreciated Giorgi's realistic expectations for the description generated in the descriptive phenomenological research stating that

> perfection is not a criterion, that is, it is not the case that each description of an experience, whether ongoing or retrospective, has to capture prereflective flow perfectly. Rather, the criterion is one of adequacy, defined as a description that is sufficiently articulate so that new, insightful knowledge about the phenomenon being studied can be obtained. (Giorgi, 2009, p. 118)

Therefore, I selected Giorgi's descriptive phenomenological method as the most appropriate method to answer my research question. It was a well-established, rigorous research method that had been used in various disciplines. It was also a well-described method that sought "to establish scientific criteria appropriate for the study of lived, human subjectivity" (Applebaum, 2011, p. 518).

Assuming a Phenomenological Attitude and Bracketing

At the core of the descriptive phenomenological method is a phenomenological attitude that the researcher must assume to conduct a descriptive phenomenological study. Based on the Husserlian concept of phenomenological reduction, Giorgi (2009) describes assuming a phenomenological attitude as a process in which the researcher brackets all previous knowledge and experiences in order to take a fresh approach to the data, free of the researcher's assumptions, prejudices, beliefs, and values. The researcher also maintains disciplinary perspective and focus on the phenomenon under investigation throughout the research process.

In the phenomenological research method literature, bracketing is usually linked to data collection and data analysis (Giorgi 2009). According to Giorgi (2009) only the researcher should bracket, as the researcher aims to understand the experience as described by the participant within the natural attitude. Although bracketing is considered a key methodological issue in phenomenological research, the process of how it is done is rarely described in the literature (Chan, Fung, & Chien, 2013). Schmidt (2005) describes bracketing as a process of *letting go* and *letting be*. This means that the researcher has to let go of all previous knowledge of the phenomenon, and let the phenomenon be as it is within the natural attitude of the experiencer.

Chan et al. (2013) recommend that bracketing be exercised throughout the research process, and identify the following four strategies to guide the process: strategy for mental preparation; strategy for deciding the scope of the literature review; strategy for data collection; and strategy for planning data analysis. My reflections about how I used these strategies to bracket throughout the research process are provided below.

Strategy for mental preparation. Chan et al. (2013) argue that bracketing starts even before deciding on a research paradigm, because that is the time for researchers to consider if they can put aside their own knowledge and adopting the phenomenological attitude throughout the research. In my case this process of self-reflection and self-examination started at the beginning of the research proposal development.

I selected this topic for my doctoral dissertation because I am passionate about the human rights of persons with disabilities. I spent over 20 years working with persons with disabilities, advancing their rights around the world in different aspects of life. I was a trainer, a disability rights advocate, and a manager. Both my academic and research careers have been linked to disability. I have a Master's degree in Rehabilitation Sciences with specialization in disability in the community. I have conducted participatory, phenomenological research according to Moustakas (1994) with women with spinal cord injuries. I have close friends and family members who have been affected by disability. I believe that disability is a human rights issue, and that disability is an interaction between persons with impairments and their environments.

When I reflected on what would be the most useful contribution that I could make to online learning and students with disabilities, I concluded that it would be to bring to light the experiences of students with disabilities and make these experiences part of the research, academic, and policy dialogues. I considered different ways to approach this task. I was philosophically aligned with the critical paradigm that has social justice and change on its research agenda, in which research aims not only “to understand situations and phenomena but to change them” (Cohen, Manion, & Morrison, 2011, p. 31). Understanding of power relationships that are shaped by social, political, cultural, ethnic, disability, and gender values should lead to action.

I also shared the critical theorist view of language -- that language should be used not only to label objects, but to actively shape our reality (Scotland, 2012). However, to address the gap in the literature and absence of evidence regarding experiences of students with disabilities in online programs, I made the decision to focus on generating that evidence rather than critiquing the current situation.

In describing the philosophical assumptions of my proposed research, and recognizing that I also aligned myself with the critical paradigm, I began suspending my prejudgements and mentally preparing to open myself to whatever the experiences of participants would be.

Strategy for deciding the scope of the literature review. Chen et al. (2013) describe this strategy as a balance between the researcher’s criteria for research and the views of some phenomenologists that the literature review should be delayed until after data collection to avoid potential influences (Hamill & Sinclair, 2010). A literature review can influence the preconceptions about the phenomenon under investigation (Chen et al., 2013). Nevertheless, to satisfy the criteria for my doctoral dissertation proposal, I conducted a comprehensive literature review. I also saw it as a necessary step in determining the focus and scope of my research, and connecting it to concepts and an existing body of knowledge, theories, and policies. In addition, the process of conducting the literature review gave me the time and space to look at the phenomenon under investigation from different perspectives, and to challenge my own views. For me, the completion of the literature review itself was an act of bracketing in which I ensured that what I presented as key findings was not polluted by my views about the issues. I also wrote about phenomenology-related, learning, and disability theories in an attempt to make sense of the theoretical landscape, inspire the study, locate it within theories of education and disability, and then *let it go* until later stages of data analysis.

Vagle (2014) explains that Moustakas (1994) and Giorgi (2009) see bracketing of theoretical knowledge as a must during data collection and early analysis in every descriptive phenomenological study. At the same time, they expect that researchers bring theoretical knowledge from their field to the study to use in the later stages of data analysis and discussion of the results.

I considered the literature review an important step to start learning more about the phenomenon from the literature, and becoming more aware of the existing research and my own knowledge. It allowed me to know what needed to be let go in order to be ready to let the phenomenon be as it is described by the experiencer (Schmidt, 2005).

Strategy for data collection. Semi-structured interviews were used to collect data. I developed an interview guide (Appendix A) to provide the overall direction for the interview and avoid leading questions, while allowing me to ask probing questions in the participants' interests or concerns (Chen et al., 2013). Throughout the interviewing process, I made a conscious effort to suspend my views and allow participants to describe their experiences within the natural attitude. Throughout the process of data collection, I kept notes and reflective journal. For example, I made the following journal entry on January 11, 2017 related to maintaining the phenomenological attitude during the data collection:

> How to be open? How to let go? How to make sure that it is suspended, sitting on my shoulder without burdening me? I enter every interview with my mind cleared of all expectations. I let every interview open itself and unfold in a unique way, by letting participants tell the story they want to tell and listening to them with my phenomenological, educational, and interactionist ears, and redirecting the conversation to experiences.

Strategy for planning data analysis. Giorgi (2009) suggests engaging in bracketing as part of the data analysis phase. According to Giorgi (2009), this implies that "[e]verything in the raw data is taken to be how the objects were experienced by the describer, and no claim is made that events described really happened as they were described" (p. 99). My personal experiences and knowledge of the phenomenon were bracketed, resulting in a fresh look at data.

As Vagle (2014) has suggested, bracketed theories can be brought in towards the end of analysis to situate the study theoretically and contribute to the field. My strategy for planning the data analysis involved revisiting the methodological and philosophical literature on phenomenological reduction, seeking everyday examples of bracketing, and using a mobile phone application to meditate for 10 minutes daily, which helped me become more aware of and alert to things as they were.

Bracketing during data analysis. In addition to the strategies for bracketing what I knew, believed, and experienced (Chen et al., 2013), when I started the analysis I also started bracketing what was becoming known to me, such as the new thoughts and feelings that I developed towards the participants in the research process. I decided to bracket these new feelings because they might influence my description of their experiences. For example, as I was analyzing the data, I developed feelings of great admiration for some of the participants in my study. In these situations, I had to suspend these feelings, set aside my natural view, and use the phenomenological lens to move beyond the individual and focus on the interactions in online learning.

In the final stage of my research when the structure and its constituents were developed, and I had discussed the findings in the light of the existing literature, I returned to the knowledge and theories that I had bracketed in earlier stages of the research process to situate my study within the disciplinary and theoretical boundaries of online higher education and disability. As Vagle (2014) states, “The point of ‘coming back to’ the data using theories is to acknowledge that the work of a researcher is to contribute to ongoing theorizing” (p. 74). At this point in the research process, I felt that my completed study was indeed an addition to the discipline and would contribute to filling the gap in the literature associated with students with disabilities in online learning.

Participants

According to Giorgi (2009) participants in the study should be everyday persons who would “describe their experience from the perspective of the lifeworld, from within the natural attitude” (p. 99). There are four criteria for inclusion of participants in a phenomenological study: they have experienced the phenomenon under investigation; they are interested in the nature of the phenomenon; they are willing to participate in one or more long interviews; and they give the researcher authorization to record and publish data (Moustakas, 1994, p. 107). As described below, a purposeful, criterion-based sampling strategy (Creswell, 1998) was used to select a sample of students who experienced the phenomenon and met the inclusion criteria.

Inclusion Criteria

Participants of the study were undergraduate and graduate students who met the following criteria:

1. Had used the services of the Access to Students with Disabilities (ASD) Office, self-identified as having a disability on the admission forms, were referred or self-referred after starting their studies to the ASD Office, or self-identified as having a disability and not used services of ASD;
2. Had completed at least two undergraduate or graduate courses at a distance;
3. Were enrolled in an undergraduate or graduate course when interviewed.

Recognizing that students with disabilities were not a homogenous group, in order to capture that diversity, I aimed to have a maximum variation sample, which allowed me to do comparative and contrastive analyses among participants (Cohen et al., 2011). Given that undergraduate and graduate programs have different designs and pedagogies, and that research has shown that undergraduate and graduate students have different levels of online experience, motivation, and self-regulation when learning online (Artino & Stephens, 2009), the maximum variation sample was divided into two groups: graduate students and undergraduate students with disabilities.

Sample Size

A total of 16 participants were recruited and interviewed in the study. One interview was excluded because the poor quality of the recording prevented transcription. Although some theorists contend there are no rules for sample size in qualitative inquiry (Patton, 2002), Creswell (1998, 2015) recommends that a sample of three to 15 participants is sufficient for a phenomenological study. Ultimately the sample size was guided by saturation, which was reached when I discerned that no new information and insights were emerging from further interviews (Cohen et al., 2011; Creswell, 1998).

Pseudonyms

Pseudonyms were used to protect participants' anonymity. Participants were asked to select their own pseudonym. Nine of the 15 participants selected the names to be used in the study. For the six participants who did not wish to select a name, I assigned a pseudonym using the website Baby Name Wizard (http://www.babynamewizard.com/) in order to generate a name that was popular at the time when the participant was born and that indicated the gender of the participant, while at the same time trying to avoid any other identifier inherent in the name.

Demographic Characteristics of Participants

Of the 15 participants, six were graduate students and nine were undergraduate students. One of the graduate students also had completed an undergraduate degree at the same online university. Nine participants (60%) were women. Participants were enrolled in seven different undergraduate programs, one undergraduate certificate program, and four different graduate programs including computing and information systems, psychology, professional and human services, general studies, human resource management and industrial relations, labour relations, language, inclusive education, counseling, education, and integrated studies. Table 1 provides an overview of the participants' age, program of study, and disability.

Table 1

Participants by age, program and disability

	25 – 34 yrs		35 – 44 yrs		45 – 54 yrs		55 – 64 yrs		65 – 74 yrs	
Program	F	M	F	M	F	M	F	M	F	M
Undergraduate	1	2		2	2		1			
Certificate			1							
Graduate			1		1	1			2	1
Disability										
Developmental disabilities			1							
Health condition					1					
Learning disabilities	1	1								
Mental health related disabilities				1	1	1				
Physical disabilities									1	1
Neurological disabilities				1			1			
Multiple disabilities		1	1		1				1	

The average age of the undergraduate and graduate participants was 40 years and 56 years, respectively. In comparison to the general student population, participants with disabilities were older; in 2015-2016, the average age of undergraduate and graduate student was 30 years and 38 years, respectively. Participants had a wide range of disabilities including developmental disabilities, health conditions, learning disabilities, mental health related disabilities, physical disabilities and neurological disabilities. No participants had only sensory disabilities, or were deaf or blind. Students who had multiple disabilities had combinations of health condition and learning disabilities, multiple mental health related and physical disabilities, as well as sensory, mental health related and learning disabilities. Only two students were not registered with the ASD Office.

Recruitment

I attempted several recruitment strategies to ensure a sufficient number of participants in this study including the following: Facebook announcements, email invitation to participate in research sent by the ASD office, participant's suggestion (snowballing technique, announcement on the university websites, recommendation by instructors, and the email invitation through a department. Only the first two strategies resulted in recruitment of participants for the study. Both strategies involved sharing information about the study that was approved by the Research Ethics Board (Appendix B) with instructions on how students who were interested in participation could reach me. Once interested students had contacted me I sent them detailed information about the study, the consent letter, and arranged the time for the interview.

I made five postings on the student-run, closed Facebook group page, which had 2,045 members without and with disabilities. Seventeen students contacted me to express their interest in participation: two were ineligible, eight did not respond to the second message with the information and consent letters, and seven students were interviewed.

Invitation from the ASD Office

An invitation to participate in my study was sent by the ASD Office to 440 students with disabilities registered with the office, who met the inclusion criteria. The initial contact with potential participants had to be made by the ASD Office, as confidentiality issues precluded their releasing the names of students with disabilities. A total of 29 students responded to the invitation: five were not eligible, 15 did not respond to the follow-up email with details of the study, and nine students were interviewed.

Data Collection

Data were collected in 60- to 80-minute telephone or Skype interviews, depending on the participant's preference. Interviews were conducted in the natural setting in which each participant had experienced the phenomenon. Namely, the interviews were technology mediated, and participants were located in the living environment from which they studied and experienced online learning interactions. At the end of the interview I asked participants if they would like to share some artefacts that they thought would help me better understand their experience. Five participants provided me with artefacts.

Interviews

I initially planned to conduct two telephone or Skype interviews: one short interview to establish the student's eligibility, explain the study purpose, and obtain the consent; and a 60-minute interview to collect in-depth data. After the initial interview, however, it became obvious that only one interview was necessary. The email correspondence with participants about the study replaced the first interview, and it was much more convenient to participants to commit to only one interview. Therefore, with the approval from Research Ethics Board, the information letter and consent from (Appendix C) were amended to describe the revised procedure in which participants would participate in only one interview.

At the beginning of each interview I confirmed the participant's eligibility, reviewed the study, obtained the verbal consent, and asked for the permission to turn on the audio recorder. To help protect the participant's identity, the first part of the interview, in which I confirmed the identity of participants, was not recorded. This strategy allowed me to have audio recordings that were stripped of most personal identifiers.

Using the semi-structured interview guide (Appendix A), I then asked participants to describe what it had been like for them to study online with a disability, what they had done, how they had felt, how they had interacted, and what they had seen as barriers and facilitators that shaped their online academic experiences.

The guide for the in-depth, semi-structured interview included a set of questions that were used as a basis for data collection from students with disabilities, who gave descriptions of their experiences within their natural attitude. I conducted interviews in an informal and interactive way, making sure that participants felt comfortable, and responded openly and honestly. The interview questions guided the dialogue with participants; this meant that I did not always ask all questions in the same order, allowing for leads to be followed and explored. I took interview notes and wrote in a self-reflection journal; these were later used as additional sources of data.

The 15 interviews resulted in more than 15 hours of audio recordings. They were audio-recorded using Amolto Call Recorder for Skype (http://amolto.com/), a free tool for unlimited audio recording of Skype conversations. I called participants either on Skype or with the phone number they provided. Skype uses encryption to protect communications and ensure privacy and the integrity of the data sent over Skype.

To help ensure confidentiality and anonymity, I created a Skype account *elearndis* for the study to avoid the possibility of linking and tracing participants through their Skype accounts. Prior to the interview, I sent the participant an email with the log in information and password. After the interview was completed, I changed the password and sent a new password to the next participant. The account was closed and deleted after the completion of the interviews.

Artefacts

Five participants shared with me different artefacts including art work, a web site, an assignment, and a journal. These artefacts were not used as a primary source of data in the analysis, but to cross-check structure in the description of experiences for these individuals.

Transcription

I hired an experienced court transcriptionist to transcribe all interviews. The transcriptionist signed a confidentiality agreement (Appendix D), which included information on data storage, management, and deletion upon the completion of the transcription.

My early attempt at transcribing had turned out to be very slow and time consuming, therefore I decided to use a professional transcriptionist and focus my attention on analysis. I used Google Drive to give the transcriptionist the password protected access to the audio files. The passwords were agreed with the transcriptionist in a phone conversation. I discussed the details of format, consistency across the interviews, and the style of transcripts with the transcriptions. I requested verbatim transcripts. I was available if the transcriptionist had any questions or clarification requests. The transcriptionist returned password-protected files with verbatim transcripts of all interviews using the same procedure. Upon the completion of the transcription, audio and text files were deleted from Google Drive.

Although the transcription process seemed to be straightforward and almost mechanical, several decisions needed to be made to ensure that the format of transcripts was optimal for the phenomenological study. Therefore, I returned to the literature to inform and support my decisions. Giorgi (2009) considers transcription to be a visual stabilization of the interview that facilitates analysis and reporting. The transcriptionist transcribed the audio recordings of interviews that I had conducted. I verified all transcripts by listening to the audio files and comparing them with the transcripts to ensure accuracy. However, the process of transcription is not neutral because decisions must be made about what to transcribe and how to transcribe it (Bucholtz, 2000). Despite attempts to make the transcript as accurate as possible, the transcript is a change of medium from sound to its visual reification (Giorgi, 2009). It changes audible expressions into a written description.

Little guidance is available about the mechanics of transcription (Giorgi, 2009). Transcripts are completed in variety of ways and range on a continuum from naturalized transcripts, which capture all utterances, to denaturalized transcripts in which involuntary vocalizations and pauses are removed (Oliver, Serovich, & Mason, 2005). My selection of the approach to transcription was guided by the need of this phenomenological study to capture in written words the experiences participants described in the interviews. It was more important to capture the content that was the description of experience, rather than to focus on the mechanics of the interview. However, in order to have a full record of each interview, I requested verbatim transcripts that included all utterances. In this way, the transcriptionist did not need to make decisions about whether or not to include an utterance.

Once the transcripts were transferred back to me, I listened to the audio files and compared them with transcripts. Transcripts were accurate, and I made very few changes. After I had reviewed the transcripts, I sent them to the participants for their review and comments as part of member checking. Ten out of the 15 participants reviewed the transcripts and sent me their comments. After participants had confirmed the accuracy of verbatim transcripts, I denaturalized all the interviews by correcting grammar and removing all involuntary utterances and noises. This process resulted in two transcripts for each interview as advocated by some qualitative researchers: the original naturalized transcript, and the denaturalized one (Oliver, Serovich, & Mason, 2005). Naturalized transcripts were used as the first written record of the interview; The denaturalized transcripts, which totaled 136 single-spaced pages, were used in the ensuing analysis.

Accommodation during Data Collection and Member Checking

None of the participants required any accommodation to participate in the telephone or Skype interviews. For the member checking, one participant required the verbatim transcript to be formatted using a more accessible font. None of the other participants requested any accommodation for member checking the verbatim transcripts.

Data Analysis

Denaturalized transcripts were the primary data source and basis for data analysis. Other forms of data including artefacts, interview notes, and my self-reflective journal notations were used to support the findings of the phenomenological analysis of the transcripts.

Phenomenological data analysis is a method that “seeks to grasp and elucidate the meaning, structure and essence of the lived experience of a phenomenon for a person or group of people” (Patton, 2002, p. 482). It can be conducted in a number of ways. I analyzed the transcripts using the step-by-step approach developed by Giorgi (2009). Giorgi (2009) applied phenomenological philosophy to conducted psychological research on the lived experiences of participants in order to describe the phenomenon as accurately as possible while suspending any pre-given framework in an effort to remain true to the given descriptions. I took the following steps in analysing the transcripts, according to Giorgi’s descriptive phenomenological method (Giorgi, 2011):

1. I assumed the phenomenological attitude by adopting the attitude of phenomenological reduction, maintaining the disciplinary (i.e., educational) perspective, and remaining focused on the phenomenon under investigation (interactions of online learners with disabilities). I maintained this attitude in all steps of the research. Phenomenological reduction means that I took each participants’ experience as a presence to his or her consciousness, and bracketed my natural attitude to question whether what was described as an experience existed the way it was experienced. I maintained an educational

perspective and a focus on interactions in order to be able to describe educational aspects of the experience.

2. I read each transcript in its entirety to get the sense of the whole, as phrases important for understanding the phenomena could be made at different points in the interview. To be able to analyze the description correctly in the subsequent steps, it was necessary to read the whole transcript to get a holistic view of the experience and a sense of the entire description. While I was reading the descriptions, I tried to remain open to the data without analyzing, clarifying, or making it more explicit at this point.
3. I determined meaning units by rereading the description and marking every significant transition in meaning that I noticed, while maintaining the phenomenological attitude. The result of this process was that the description of experience was broken down into a series of meaning units; each transcript yielded an average of 100 meaning units per participant. Giorgi (2009) described this process as a spontaneous and arbitrary activity that did not have any theoretical weight. It was a practical step that helped me manage the next steps of the analysis. At this stage, I did not examine meaning units according to any criteria.
4. I transformed the meaning units of the participants' natural expressions into phenomenologically- and educationally-sensitive expressions through eidetic reduction and imaginative variation. I explicitly described the educational aspect of the lived experience of interactions for students with disabilities. The goal of this step was to understand the phenomenon; therefore, each meaning

unit was examined for the insight or implications that it had for the experience of the phenomenon. To assist in this process, I went through the following procedure:

a) First, I created a table for each participant with five columns and a number of rows that corresponded to the number of meaning units. The first column was populated with meaning units. Subsequent columns in each row were used to record the transformations of the given meaning unit (Appendix E).

b) As per Giorgi’s guidelines (2009), the first transformation of the description from the first-person account to the-third person description was entered in the second column. Giorgi suggested this step particularly for novice researchers because it was important to indicate that the experiencer and the researcher were two different persons, and the researcher was analysing another people’s experience.

c) Subsequent transformations of each meaning unit involved explication of experience, making the participant’s perception and feelings more visible, “even though they may have been unnoticed by others” (Giorgi, 2009, 156). It involved a certain type of generalization that allowed me to describe the structure of experience for a group of people. This step in the analysis was the most difficult and the most creative one, as I was rewriting meaning units and making explicit the structure of the experience.

d) Different meaning units went through several transformations, depending on how rich they were. The transformations indicated the way that naïve descriptions presented themselves to my consciousness, the consciousness of the researcher. They were the result of imaginative variations that uncovered the structure of the experience.

e) To ensure rigor, I constantly self-examined my phenomenological attitude, returned to methodological literature to reread descriptions of the data analysis process, and reflected on the literature, processes, and myself as a researcher.

5. I synthesized and described the general structure of the experience of interactions for undergraduate and graduate students with disabilities. Giorgi (2009) points out that, “The structure is meant to depict the lived experience of the phenomenon, which may include aspects of the description that of which the experiencer was unaware” (p. 166). Descriptive phenomenology allows the researcher to integrate individual lived experiences and express them holistically as the structure, making them general. Each structure had several invariant constituents without which the structure would collapse. However, before developing the description of the general structure, I presented individual descriptions for each participant. Individual descriptions of experiences and use of participants’ voices when describing constituents of the structure in the subsequent section of the findings were the only departure from the Giorgi’s method. I decided to include them for two reasons, one philosophical and other methodological. Individual narratives as well as direct quotes from participants gave a voice to students with disabilities. These narratives also allowed readers to judge the way I transformed participants’ descriptions into description of the structure.

Ethical Considerations

This research was approved the Athabasca University Research Ethics Board (Appendix B). I also obtained institutional permission and departmental support to conduct the study. To provide an additional layer of confidentiality and anonymity of participants, the educational institution in which the research was conducted was not identified by name, but was identified only as a single mode, Canadian, distance education university. I maintained ethical standards by adhering to the ethical principles, as discussed below.

Informed Consent

Prior to the interview, I sent the Letter of Information and Consent Form (Appendix C) to students who had contacted me to take part in the study. The Letter of Information provided a description of the study and expectations of participants. All participants signed and returned the Consent Form agreeing to participate in the study. At the beginning of each interview, I reviewed the study information and the Consent Form with each participant, reiterated the voluntary nature of their participation and their right to withdraw, and gave them an opportunity to ask questions.

Confidentiality and Anonymity

All information collected and used in this study was held as strictly confidential. Identities of participants were not linked in any way to the information they provided. Their identities are not revealed in the dissertation, nor will they be disclosed in any other resulting documents, reports, presentations, or articles.

The anonymity of the participants was protected at all times by ensuring that it was impossible to link the information participants provided to a specific person. The data were stripped of any identifying information. Participants' names were removed from all transcripts. Pseudonyms were used to identify participants in this dissertation, and will be used in any future reports or articles. Data were collected in telephone and Skype interviews. Skype was selected because of encryption that protects communications and ensures privacy and the integrity of any data sent over Skype. To ensure anonymity, I set up a Skype account so that the participation in the research could not be linked or traced to individual accounts of the participants. I also set up a separate email account for this study that will be deleted upon the online publication of the dissertation. As the sole researcher, I was the only person who had participants' contact information and who communicated with them directly. The master list of participants' contact information was kept in the password-protected electronic file on my password-protected laptop, and the hard copy of the list in a locked filing cabinet. Contact information will be destroyed at the end of the research. The transcriptionist signed a confidentiality agreement (Appendix D). Audio recordings stripped of participants' personal identifiers were transferred to the transcriptionist using a password-protected access to Google Drive. Upon the completion of the transcription, the transcriptionist confirmed in writing deletion of all files related to this study. Once I downloaded transcripts to my computer, all documents related to the study were deleted from Google Drive.

Voluntary Participation

Participation in the study was voluntary. Participants were informed that they could withdraw at any point without consequences.

Risks and Benefits

All participants were informed about potential risks and benefits of the research. Details were fully disclosed and explained to participants in the informed consent letter (Cohen et al., 2011). This research involved some potential risk for participants, as recounting their experiences might be difficult or painful for some. However, this risk was considered minimal, according to the definition in Tri-Council policy statement on ethics that defined minimal risk as “the probability and magnitude of possible harms implied by participation in the research is no greater than those encountered by participants in their everyday life that related to the research” (Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, and Social Sciences and Humanities Research Council of Canada, 2014, p. 30).

Storing Data

Raw data (audio files) and transcripts were stripped of all identifiers and will be stored digitally for two years after the project is completed, per Social Sciences and Humanities Research Council policy. All data is encrypted and kept in password-protected folders on my password-protected laptop computer. The backup of digital files is kept on memory sticks in the locked filing cabinet.

Dissemination of Findings

The doctoral dissertation will be listed and deposited in the Athabasca University Library’s Digital Thesis and Project Room. Findings from this study will be presented at academic conferences and in relevant publications, and will be made available to project participants and stakeholders. To facilitate open access, results stripped of any personally identifying information will also be disseminated through social media and websites relevant for students with disabilities in online higher education. Without contacting the researcher, participants in the study will be able to access the executive summary and the link to the website with the complete study on the Word Press blog dedicated to this research: https://wordpress.com/posts/atdistance.wordpress.com.

Trustworthiness of the Study

The literature on qualitative research indicates a plurality of perspectives, definitions, criteria, and approaches to trustworthiness. Different authors use different terms and present different criteria to assess different qualitative methods such as trustworthiness and validity. There are multiple perspectives on the use of the terminology of quantitative research in assessing qualitative research, and many qualitative researchers reject the use of validity in the context of qualitative research. Guba (1981) introduced four criteria for assessing trustworthiness of qualitative research including credibility, transferability, dependability, and confirmability, in a way to correspond to quantitative validity criteria.

Shenton (2004) summarized possible actions by researchers to address Guba’s criteria. The summary of recommended strategies (Shenton, 2004) used in this study can be found in Table 2.

In addressing credibility, the researcher demonstrates that: a true picture of the phenomenon is presented by adopting appropriate, well recognized research methods; he/she has developed the familiarity with culture of participating organizations; random sampling of individuals serving as informants is used; triangulation is used; tactics to help ensure honesty in informants are employed; iterative questioning in data collection dialogues is used; negative case analysis conducted; debriefing sessions between researchers and superiors held; peer review used; reflectivity practiced; description of background and experience of the researcher clearly presented; member checks used; thick description of the phenomenon under scrutiny developed; and previous research examined to frame findings (Shenton, 2004).

Table 2

Criteria for trustworthiness of qualitative research

Criterion	Strategy employed
Credibility	• Adoption of appropriate, well recognized research methods • Familiarity with culture of participating organization • Examination of previous research to frame findings • Triangulation of data sources and programs • Ensuring honesty in informants • Iterative questioning in data collection dialogues • Achieving saturation • Member checking • Negative case analysis • Thick description • Regular peer debriefing and review • Debriefing with supervisors • Reflexivity and iterative engagement with methodological literature
Transferability	• Providing sufficient background data and thick description of the phenomenon to allow comparisons
Dependability	• Providing detailed description of methodology to allow for study replication
Confirmability	• Providing detailed description of methodology to allow for examination and scrutiny of the findings • Disclosing researcher’s beliefs, assumptions, knowledge and experiences • Using diagrams to demonstrate audit trail

According to Shenton (2004) the transferability criterion can be met by providing sufficient background data to establish context of the study, and detailed description of the phenomenon in order to compare and determine whether the findings could be applied to the other context. Dependability could be reached by providing in-depth description of the methodology to allow other researchers to replicate the study. To achieve confirmability, the researcher must demonstrate that the findings are grounded in data by clearly disclosing own knowledge, experiences, beliefs, and assumptions, maintaining the audit trail, providing the detailed description of methodology, and discussing its limitations. In addition to these approaches to ensure trustworthiness and rigor in qualitative research, different authors suggest using multiple data gatherers or coders, and data collection until saturation (Creswell, 1998, 2013; DePoy & Gitlin, 1998).

Credibility

To ensure credibility of my study I used several approaches identified by Shenton (2004). I selected descriptive phenomenology among many forms of phenomenology as the best method to answer the research question because the method itself has been well established and described by Amedeo Giorgi, and widely used in psychology, nursing, and education. As a distance education student myself, I was familiar with the culture and characteristics of an online learning environment. I also conducted a literature review as one of the first steps in this study, which helped me discuss and frame the findings in the discussion chapter of the thesis. I used in-depth, semi-structured telephone or Skype interviews as a primary data source in phenomenological analysis. I triangulated this primary source of data with my notes and artefacts produced by participants that were secondary sources of data in cross checking the structure developed in phenomenological analysis. Participants came from different programs including undergraduate, certificate, and graduate programs, in what could be considered as site triangulation. To ensure openness of informants, at the beginning of each interview I explained that participants had a right to withdraw from the study or decline to answer any questions without any consequences. I also emphasized that their identity would be protected and what they shared in the interview would be confidential without jeopardizing their status at the university in any way. I encouraged them to answer frankly and honestly as there were no right or wrong answers. I also asked probing questions, and revisited some issues that participants mentioned by exploring them in depth, and confirming in this way the accuracy of their naïve descriptions. However, I did not posit whether experiences as described existed. Once the data had been collected and transcribed, I sent verbatim transcripts to all participants for member checking. In the analysis, I used two negative cases to examine the structure of the experience that emerged from the data. I developed thick descriptions of individual experiences, and in-depth description of the structure of the experience of interactions for students with disabilities in online university programs.

Throughout my research, I had regular peer review meetings with a colleague who was also conducting a phenomenological study. I also had a debriefing session with my committee when I presented methodology I was using in the analysis. I kept a journal, reflecting on data, emerging structures, my personal viewpoints, and the literature to which I kept returning to support my methodological decisions.

Transferability

I described in detail the context of the study and the phenomenon under investigation to allow other researchers to make comparisons by applying findings to the contexts and situations they are familiar with.

Dependability

In the chapter on methodology I provided details of the descriptive phenomenological method and how it was applied in this study, giving the opportunity for other researchers to replicate the study.

Confirmability

In addition to a detailed methodology chapter, I wrote an in-depth account of my own values, beliefs, knowledge, and experiences as they related to students with disabilities in online learning environments. I also identified limitations of the study and provided an example of the audit trail in Appendix F. I implemented all these approaches to demonstrate confirmability of the findings that emerged from the data.

Chapter 3 Summary

In this Chapter I presented the research methodology used in this study including the philosophical foundations and justification for the chosen approach. I presented details of the research process and how I applied the Giorgi's descriptive phenomenological method in this study. I also discussed ethical considerations, and trustworthiness.

In the next Chapter I present findings of the study by providing the individual narratives, description of the constituents of the structure, and the description of the structure of experience.

CHAPTER 4 - FINDINGS

As the number of students with disabilities in higher education has increased, investigating topics related to students with disabilities in post-secondary institutions has grown in importance. However, insufficient attention has been paid to the actual experiences of students with disabilities. My study contributes to this under-investigated area by describing the structure of the experience of interactions for undergraduate and graduate students with disabilities in an online university. In this chapter I present the structure of experience that Giorgi (2009) defined as “a way of understanding why diverse facts and concrete details can belong to the same phenomenon” (p. 200). The structure of experience consists of several interrelated constituents without which the structure would collapse. The findings are presented in five sections: horizontal features of the online university and its program, individual descriptions, constituents of the structure, barriers and facilitators to interactions, and the description of the structure of experience of interaction as a whole.

Understanding Horizons: Description of the Programs

To describe the structure of students’ experience of interactions, it is necessary to understand the horizons or backgrounds in which online learning interactions were experienced by students with disabilities. As Dalberg and Dalberg (2003) state “Every experience has its own horizon” that defines what is immediately given of experience (p. 37). Describing horizontal features of undergraduate and graduate programs in an online university where study was conducted situates it within a broader context and enhances the understanding of the structure of the experience as a whole (Giorgi, 2009).

All students who participated in this study were enrolled in a Canadian, single mode, distance education university that had 40,000 students studying in over 50 online graduate, undergraduate, certificate, and diploma programs at the time of this study. In 2013-14, 6 percent of all students were registered as students with disabilities by the Access to Student with Disabilities (ASD) office. In 2015-16 the number of active students registered with the ASD office increased by 25 percent. The ASD office provided services to students with disabilities who had disabilities diagnosed by a physician, psychologist, psychiatrist, audiologist or speech language pathologist. ASD services included advocacy, liaison, and referral, alternative format course materials, assistive technology, course management services, exam accommodations, and learning support services.

Undergraduate programs usually consisted of individualized study courses with year-round enrollment, limited interactions with tutors, and limited or no interactions with other students. Graduate programs were usually cohort based with fixed semesters, designed to facilitate interactions with peers, instructors and materials. Fifteen students with disabilities participated in this study, nine of them were undergraduate students and six graduate students. They attended seven undergraduate, four graduate and one undergraduate certificate programs.

Understanding Horizons: Individual Descriptions

Data analysis is context specific and the descriptive phenomenological method recognizes the importance of possibilities and horizons (Giorgi, 2009, 68). Therefore, I considered it necessary to present individual descriptions as an initial step that I undertook to describe the structure of the experience of interactions for a diverse group of students with disabilities. I have developed individual descriptions by using the final transformation of meaning units in the process of data analysis from the experiencers' naïve descriptions to the individual descriptions of structure I generated by using the descriptive phenomenological method. In presenting the findings, I use pseudonyms to refer to the participants. Individual experiences are presented in the interview order, first for undergraduate and then for graduate students, except for the description of Megan's experience, which opens the section for graduate students. Her experience bridges the two groups, as she was a graduate student at the time of the study but had completed the undergraduate program at this online university and she referred to both when describing her experiences of studying online. Individual descriptions and the participants' quotes in the description of constituents represent my only departure from the Giorgi's descriptive phenomenological method to give a voice to participants in this study and allow readers to judge the way I transformed their naïve descriptions into the structure of experiences.

Individual Structural Descriptions

Flora. Flora, a life-long learner and a self-described *online learning addict*, was enrolled in her second certificate program through the online university. She completed many online courses at this university, as well as many massive open online courses (MOOCs). Because of her disability, Flora worked from home as a consultant. She was a single mom with three young children, one of whom had a neurological disability, as she had. She did not consider her neurological disability a disability but a gift that enhanced her learning. She could sift through a vast amount of information, consume it, retain it, and apply it in many ways in a short period. She usually took three courses per term, one at a time. The only hold-back for her could be the delay in response she expected from the tutors or booking the exam at the exam centre.

Flora described her disability as inability to understand social cues, and difficulty with being exposed to bright light or environmental noises, making it hard for her to be in busy classrooms or the workplace. Online learning worked better for her. Flora used a highly-focused approach to learning, decluttering her environment, reading one unit per day, creating index cards, and using Evernote to compile, categorize, organize, and safely keep all materials. She used index cards only when studying at this online university because the assignments were basic and required a lot of memorization of reading materials, which was not a problem to her. However, she would have benefited from more guidance on what exactly need to be learned to pass the course. She received a scholarship for having the highest marks in the program. In face-to-face environments Flora did not have good marks. She dropped out of the high school and changed a couple of face-to-face university programs as they were too slow for her. She managed to complete her education using alternative routes in a shorter time than it took her peers.

Although she performed better in the online university, the face-to-face environment had the advantage for her of meeting other students and getting immediate answers from instructors. Asking questions in the online university was impersonal, unproductive, and frustrating for her because she had to go through a call centre. The call centre route did not work for Flora. However, she had an *awesome* tutor with whom she spoke on several occasions and developed a more personal relationship. The tutor was accessible, flexible, and efficient, always providing good feedback immediately.

Flora was confident in her ability to use technology well. She used only her laptop. She felt that the university did not use technology in the right way, as it only replicated the classroom in the digital environment. The software was outdated, and the material did not encourage students to be more engaged. She missed the group work that she experienced in Massive Open Online Courses (MOOCs), which allowed her to network and connect to other learners. At this online university she had no contact with other students and regretted that she did not get a single friendship or connection out of it. Her tutors did not connect with students through social media, so she was not able to grow her network. While there was interaction among students in some courses, Flora still was frustrated by the way they were organized by answering specific questions rather than encouraging real interaction or dialogue. Her program did not include any group work.

Flora did not register with the ASD office because the process was too complicated; she felt it was not worth the trouble because she could not see any benefit from the accommodations. She felt that it would have been helpful for her if the ASD office had facilitated connections among students with disabilities. Flora did not find the student support services very useful as they were slow to respond and hard to reach. The exception was the student aid office, which was professional and fast. She felt that students with disabilities should have a right to free education as they were at a disadvantage in paying off student loans because of often low or unsteady income.

Walter. Walter was an undergraduate student who had completed over 15 online courses. He tried studying at two campus-based universities but quit when he could not manage his anxiety. Walter started taking summer courses online with the hope that the self-paced method would be less stressful. He described his disability as significant inattentiveness. He was a slow learner who could not concentrate and retain information successfully. Other people described his disability as anxiety, learning disabilities, and attention deficit and hyperactivity disorder. At the campus-based university, he had been registered with the ASD office and had worked with a tutor for an hour a week. He did not register with the ASD office at the online university because he did not need accommodations with exams and did not check whether he could have a tutor. He could get extensions on course assignments, so he did not want to go through the hassle of registering with the ASD office.

After two and a half years at the online university, Walter felt that studying online was better than face-to-face study for him because he could take the time and learn at his own pace, but it was hard work. His anxiety decreased, but he identified lower motivation and slowness as his biggest problems. He usually studied seven hours a day but felt that he did not learn efficiently and was taking twice as long to learn things as most other people. Although he described the course textbooks and materials as basic, it took him lots of time to figure it all out.

While studying, he checked other sources, books, and materials, and posted questions on Reddit to get immediate answers and ask follow-up questions. Evernote and Mind Mapping were essential for his learning as he made notes and organized materials for easy and quick retrieval.

Walter used his laptop to study. He wished that the university made better use of the technology it had to engage students. He would like to see more videos used, as in MOOCs, because they generated good discussions. Forums in his courses did not feel like real interactions, as they were not timely and relevant for his learning. He believed that forums were taking away from his study time instead of contributing to his learning. Students posted in forums only because it was mandatory, not because they wanted meaningful learning interactions. He felt that forums were better if tutors participated in them. Other than in forums, he did not interact with students in his programs. He did not interact with his tutors either, because he had negative experience with them. For almost all his classes, the tutors were always rushed. He would send his tutors carefully and clearly worded emails, and usually with a delay he would get an answer that was not helpful. He tried phoning tutors, but this did not work for him because of his disability. His thinking was slow, and he was easily confused, frustrating his tutors. This happened so often that he no longer asked tutors for help. He had only two tutors who called him at a time convenient for him, listened to him, and discussed what was going on. His program was not designed to facilitate interactions with tutors because all questions were directed to the call centre. That did not work for Walter as he preferred more one-on-one time with faculty.

Walter had a lot of flexibility in the online university, and he just needed to find a way to learn faster. He really enjoyed assignments that allowed him to select a topic, explore it in detail, apply his learning, and have fun doing it. Because online learning was more flexible, he could spend as much time as he wanted on issues that interested him in an assignment. Although many universities offered online degrees, this university was unique because it offered self-paced programs – the reason why it worked for him. He hoped to graduate within two years with a bachelor's degree and find a job again.

Linda. Linda was a full-time undergraduate student who had held various leadership positions in non-profit sector for 30 years. She left her job after having a breakdown, and in order to regain employment, needed a degree. She chose the online program because she had suffered uncomfortable, scary, and overwhelming anxiety attacks in large groups. The online environment allowed her to study at her own speed and plan her study schedule when she was not anxious and uncomfortable. Linda was an organized and regimented learner and used her computer only for studying. Even her sleep was scheduled to help her deal with anxiety. Every day she studied for at least two to three hours, sometimes even eight to ten hours. When she was learning something new, she became anxious, so she had to be organized and keep everything simple to calm down and concentrate on her studies: have a separate workspace, declutter the desk, eliminate all distractions, and keep everything functioning. Otherwise she became overwhelmed and anxious, which would shut her down and start the downward spiral of negative thoughts. Linda registered with the ASD office because she had bipolar disorder and severe anxiety, affecting her memory. Her accommodations included extra time on exams, ability to take water, a snack, and small thing into exams to keep her calm. She took three courses per term, one at a time to increase her focus and avoid panic attacks and anxiety.

Linda studied by strictly following all the instructions in the course materials and going through the exact steps that were recommended. She thought the textbooks were good and liked when courses included videos, as the combination of videos and readings made the course more dynamic and more suitable for different learning styles. Only one course had e-texts; she did not like them and printed everything out, so she could take notes and highlight on hard copy to learn materials. Technology was a challenge and made her anxious because she had to constantly learn new things, and she was worried that she would break it. She learned enough to get things done, like taking three weeks of Moodle training before starting a course. She did not use student support services but felt that the university should make sure that students knew about services to ask for them.

Linda rarely talked to her tutors by phone because she was afraid that they would think negatively of her if she asked questions. Instead, she had to email carefully and clearly crafted questions and wait for at least a couple of days to get an answer from tutors. She missed the simple interactions of being able to get immediate responses to her simple questions. In some cases, that made her feel a bit isolated, but it was her choice. Usually, her only contact with tutors was when she received their comments and marks for assignments. She felt good when their comments were positive and constructive, and her marks were good. That was encouraging and important to her as she realized that she could do it despite her disability.

She did not interact with students in the program. In one course students had to blog about their assignments; Linda still remembered their names. She read all their posts to see how other students were doing, which helped her pass the course. In most her courses, however, there was no input from other people in the class. She felt isolated when she did not know if she was doing things correctly, and thought having a way to contact other students in the class would reduce her isolation. For that reason, she joined the students’ Facebook group to see if they were having problems and to keep updated.

Linda liked this group because it attempted to create a sense of community, as she was a university student who really did not have a university.

Linda’s experience of studying online was eye-opening for her as she realized that she had the skills to study despite her self-imposed limitations or her disability. The more courses she completed, the more confident she became. It was a challenging but positive experience that she truly enjoyed.

Peter. Peter was a fourth-year undergraduate student. Prior to enrolling in this program, he had completed a fully online certificate program and then worked for over a decade in office management. As a volunteer, he held various positions with community non-profit organizations, both at the board and program levels. Currently he was an executive director of an organization. He had multiple physical and mental disabilities: chronic pain, and sleeping, memory, and information-recall problems. The greatest advantage of studying online for him was the flexibility to adapt it to his needs because he had difficulties adhering to a set class schedule. He could study online whenever he was capable of doing it and take time for his health when he needed it.

Peter was a highly-organized learner. He used flipcharts, different software packages, and built-in features of Word to organize his thoughts and learn. One problem he faced was that there were too many different course materials, sometimes providing contradictory information. For the amount he paid in tuition, he expected better-organized materials. Most of his courses were text based. He rarely used the videos or alternative digital formats that he received.

Peter’s experience with his instructors was mixed. Some were creative and solution oriented, and others were rigid and opposed any accommodation. One course coordinator would not approve an open-book exam or the alternative assessment the ASD office recommended to accommodate Peter's memory problems. Accommodation was denied to him because he could not provide additional information about the cause of his memory problems. He was offered the opportunity to take the exam in two parts but that did not accommodate his needs. When considering accommodation around exams, he always thought as a practitioner in professional practice. He felt it was important to learn the skills to practice competently and know when to go and look for information instead of memorizing everything about the subject. In this course, the approach was to memorize everything. He was still struggling with the course. He had to fight for his rights and appeal instead of focusing on his studies. Part of his disability was that whenever his accommodation was not approved, he became combative, which usually escalated the situation. He suggested that it would have been good if more people at the university knew about non-physical disabilities. He felt that some people were informed while others simply did not get it.

Three things were critical for Peter's survival in the online program: a central contact, the ASD office, and technology. He felt very lucky that the university provided him with a central contact – a senior administrator who helped him overcome his confrontational mode and resolve problems that he could not resolve on his own using the usual channels available to him. The ASD office supported him by recommending accommodations, providing assistive technologies, and outlining options to deal with the course that he was struggling with. Knowing his options helped him to avoid panic and anxiety and made him feel in control of the process. He found that assistive technologies were useful because they got him unstuck. Without them, he would not be able to move forward from the place where he felt overwhelmed and locked in when using regular materials.

Peter's biggest criticism of studying online as a student with disabilities was the process of evaluating his learning. Assessments in almost all courses were the same and included an essay and an exam. He felt that the university should be open to student requests for alternative evaluation methods because of their disabilities, and should give them choices on how their knowledge was evaluated. The same content could be presented in the format that best suited the student, such as a research paper, video, or a workshop at which the student would present. The ASD office should support instructors in using alternative evaluation methods as almost every student with disabilities needed it, and it should not be something a student had to fight for or justify.

Peter did not have much interaction with other students in his courses. He did and did not miss it. He had some social and student-government related contacts with other students. One of his courses had a forum in which he interacted with other students. He enjoyed that very much, actively engaged in learning, and received his grade based on participation and contribution.

Sometimes Peter was stuck and could not figure out what his problem was. This was part of his disability and it would have been good if he had had someone to assist him in problem solving. He knew that everyone learned differently and faced different problems while learning and expected that there were multiple options for students to learn and be assessed.

Pete. Pete was enrolled in the last course of his second bachelor's degree. He lived on his own in a small town, and his only option to study was through an online university. It was good for him because he had a quiet home environment without stimuli, so he could control interruptions and focus. He returned to school after acquiring a disability because he liked learning. He had a bipolar disorder that affected his memory, concentration, and stamina. He was registered with the ASD office. He took online courses from two universities and received similar accommodations at both institutions, including a reduced course load and course extensions. For exams, he was allowed a quiet room, extra time, food, and breaks. He was not sure that he would have been able to succeed at an online university as a student with a disability if he had not had experience of studying without a disability. It was taking him a long time to complete this degree, but for him his mental health was the most important, and everything else was secondary. His approaches to studying were determined by his low stamina. He could not absorb materials if he was not feeling well. He took one or two courses at a time. Every day he followed the same study schedule, starting in the morning, having breaks, and finishing in the afternoon. He had always been a self-directed learner. After acquiring a disability, he had religious experience that gave him new insight when reading the materials that he had not had before his disability. Disability helped him look at the materials in the courses from a different perspective, understand it at a different level, solidify his belief in his subjective experience, and re-evaluate religious experience and his ideologies.

Pete’s interactions with tutors were mostly over email and by phone. That worked well for him as he got good, professional responses fast. He was satisfied with the level of interaction although he did not have any real-time sessions, just the online course page, which he could access at his leisure. At the other university in which he was enrolled, he had live sessions with instructors and students, allowing him to ask questions and interact in real time. The sessions were recorded so he could watch them again. He missed those real-time sessions at this university, because hearing the instructor's voice once a week helped to establish a more personal relationship with the instructor.

Pete did not have interactions with other students. He did not even know any students in the program. He liked it that way, because he liked individual work as he was learning only for himself, at his own pace, taking as much time as he needed to study in-depth.

Pete felt the course websites were well organized, with a reasonable amount of information on the screen. However, he did not like e-textbooks and online articles because it was hard for him to absorb the content in that form. Although he was not much of an online reader, he had developed a way to deal with online materials, to highlight and make notes. Taking detailed notes helped him with memory, concentration, and learning. If the readings were longer than a couple of pages, he printed everything out. Doing this was annoying to him because it cost money, and he never received printouts as accommodation. He was happy with the textbooks, as for the most part they were good, and had a lot of what he wanted to learn. But they also had material that in his view did not need to be there. He examined the materials thoroughly and spent time analyzing every word. Because of his selective perception, he discarded information that he was not interested in learning. During his first degree, when he had not had a disability, he could absorb everything; now he absorbed only what he wished to. He really liked courses that used videos. He could play them as many times as he needed and make notes without being stressed.

Pete did not use any assistive technologies. He used his computer with a large touch screen to study. Once he used an iPad that he loaded with materials he was allowed to take into an exam. That was very helpful, and he used it to prepare for the exam.

Isabel. Isabel was an entrepreneur, disability advocate, and full-time employee as well as a student. She was enrolled in her second bachelor's degree program. She came to the online university to complete studies in a major that she could not finish in a campus-based program because of her learning disabilities. She had difficulties with working memory, organization of thoughts, and expressing herself in written language. The online program attracted her because of her previous frustrating university experience; she also did not want to quit her job to study. This university gave her everything she was looking for. Studying online felt good because she was in full control of her learning. She could start courses when she was ready, without waiting for the beginning of the semester. She worked at her own pace and planned around her schedule and lifestyle. The flexibility of the program removed the pressure of deadlines as she could take her time and produce assignments of good quality. She organized assessments in the way that worked the best for her. The courses she took also helped her understand her disabilities.

But learning online came with its challenges. It was difficult for her to be consistent and motivated throughout the course. It required a lot of self-discipline.

Isabel had limited interactions with her instructors. She did not get timely feedback from them to help her correct her mistakes. By the time she got feedback with her mark, she was just happy that she was finished and usually did not go back and reflect on her assignments. In one course she had received positive feedback from the instructor on an assignment about her experience of using assistive technologies; the instructor asked for her permission to use it as an example in other classes. This was a positive experience for Isabel that gave her confidence, because academic writing was not her strength. She would have preferred more interaction with instructors because when she was applying for scholarships it was difficult to ask for a reference from instructors with whom she had exchanged only a couple of emails.

Isabel had no contact with other students and saw them only at exam centres. In one course she had to participate in Moodle discussions with other students, and that contribution was a part of the mark. Sometimes that was frustrating, because she was not always sure that she understood the points that students were making, or she felt the way students agreed with each other was redundant, or that the discussion topics had already been covered and she did not know what else to say. However, she missed contact with other students, as she did not have anyone to exchange ideas with.

Isabel thought all the materials, textbooks and e-books were great, but she preferred hard copies. She liked the physical aspect of making notes, which helped her to remember the information. The advantage of the e-text was that she could read it on devices while she was commuting and so could go through the course a bit faster. She learned how to use e-books properly including highlighting and making notes. Sometimes this did not work well on all devices, which was frustrating.

Isabel used a range of assistive software and found it all helpful, but her challenge was to use it consistently. To get the full benefit of the assistive technology, she had to be trained on how to use it. The cost of the training could be significant, and her bursary did not cover it. She was registered with the ASD office, and they helped her with obtaining funding and assistive technologies. Her accommodations included extra time and a private room for exams. She had a problem with the exam centres, because she could not have extra time due to their working hours and the additional fees they charged for the service.

Isabel appreciated that the university had online services that helped students regardless of who they were and what they could do. She followed the university on social media. However, unless information was emailed to her, it was difficult for her to find out what was going on.

Sandra. Sandra was an undergraduate student, an employee of a public agency, and a grandmother of two young children whom she was raising. She registered with the online university after she suffered a mild brain injury. She had tried studying after the injury, but could not because her ability to recall information was affected. When she contacted the university to withdraw because of her disability, they offered her accommodations through the ASD office, including extra time, a quiet room, and use of a cue sheet for her exams. It now took her longer to learn, because she had to design a structure for herself that would help her retrieve information. The cue sheets provided her with that structure and were essential for her success. For every exam, she prepared a cue sheet 30 days prior to the exam and submitted it to the department head for approval to ensure that it did not interfere with the academic integrity of the exam. When her cue sheets were not approved because her course coordinators perceived them as an unfair advantage, she had to fight for her right to have accommodation and ask for the appeal process. Usually the issue was resolved through negotiation. In her most recent course, the coordinator had approved a modified cue sheet, which Sandra considered insufficient accommodation. Because she had no choice, she would take a chance with the unsatisfactory cue sheet, but she informed the department head that she would continue with the complaint. She did not have problems getting other accommodations, but getting the cue sheet approved was stressful, humiliating, and stigmatizing. Every time she disclosed her disability, she felt that it was an invasion of her privacy as she disclosed to persons whom she did not know, who did not understand disability and accommodation, and who questioned her integrity, and she did not know how they might use the information. Her frustration was that persons with no understanding of her disability decided whether she would get the ASD-approved accommodation. Some department heads made insensitive and discriminatory comments. Some instructors did not understand that their exams were designed to test memory, not students' ability to apply information. Sandra felt powerless and helpless, but she still had to fight. She wished that there was a fair process in place ensuring that once the accommodation had been agreed upon, everyone would respect it rather than forcing her to fight for her accommodation for every exam.

Sandra's interactions with her tutors were usually limited to getting emailed marks from them. Interaction was discouraged, as all inquiries went to the call centre and instructors had restricted office hours for students to call, so she lost any interest in reaching out. She had some good tutors who were interesting, approachable, and responded quickly to her questions. She also had tutors who were not helpful, whose feedback was brief, their email responses delayed, and their courses were not interesting and engaging for students.

The online program was not designed to facilitate contacts with other students. In some courses Sandra could communicate with students electronically and they commented on each others' assignments. The level of participation in forums depended on whether it was a mandatory part of the mark or not, and it was interesting but limited. Studying online was an isolating way to get education, but the lack of interaction with other students was not that important to her. Sandra said that in the past textbooks and study guides all used to have study questions. Once they were replaced with electronic copies, she did not have access to all questions. That was a big disadvantage for her because she learned by going over study questions and online test practices a number of times until she got them all right. She also made notes and developed her cue sheet by recording all the words that she could not remember when studying. She bought hard copies of all textbooks and printed out all other materials because she needed to physically organize readings to support her learning. She had four more courses to do to complete her degree. She was looking forward to being done.

Kirk Morris. Kirk was an undergraduate student and disability activist who had a deep understanding of accessibility and human rights legislation. Twenty-one years before, he had acquired a brain injury. He finished high school and a college program where his learning needs were accommodated. He then moved to the online university to upgrade his diploma to a university degree, for two reasons: he could transfer many credits, and the ASD office was ready to support him as a distance learner. He received various accommodations for short-term memory problems, including arrangements with exam centres, course extensions, and cue sheets. When he had cue sheets, he was not stressing about recall of definitions but could focus on how to apply them. Kirk had to send cue sheets to the course coordinators through the instructor a month in advance of the exam. That could be frustrating, because he had to submit them before he actually read through all materials. He had not had any problems with cue sheet approvals. The course coordinators had contacted the ASD office to understand his disability and ensure that he was not taking in answers.

In his conversations with instructors, whenever he mentioned his disability, they became supportive because they wanted to ensure that they accommodated his disability. He was a good communicator, but had he been shy, he would have encountered a lot more opposition. Not all exam centres were accessible, and he had to go to a less convenient location in order to get a private room as his accommodation.

Kirk found his instructors to be very good. In one of his courses, he spoke with the instructor several times around exams and was directed to the areas he needed to study for the exam. Although he did not meet instructors in person, he worked with them continuously on his accommodations. He usually sent drafts of his assignments well in advance of the deadline and received helpful feedback from instructors. He believed that this option was available to all students, but it maybe it was also because of his ASD profile, so instructors understood that he needed more contact and guidance throughout the program. Kirk was upfront in disclosing his disability to his instructors to ensure that his accommodations were organized at the beginning of the course. This way he could avoid panic and frustration in explaining his accommodation needs later. He felt that his communication with instructors was easier in the online university than it had been in the classroom setting.

His interactions with other students during the program were relatively limited because his courses were mostly independent study. He did not have a single real-time session. On the other hand, the course structure gave him the flexibility to set his own schedule, manage his learning, and work at his own pace. But it also meant more responsibility and self-discipline in scheduling his studies. He set a regular study schedule when he isolated himself to avoid distractions. It usually took him longer to finish a course, but the flexibility helped with his memory deficits. Overall, things worked out for him. He felt the program could adjust around him, making it very comfortable.

He preferred hard copies of textbooks because he could highlight the text, which helped him focus on reading and remembering. He also made notes, and by writing things down and revising them, he cognitively processed the content two more times, which helped him to learn. He had troubles with e-texts because he found it difficult to focus on them. However, he developed a system of highlighting on the screen and note-taking by using Word to create a notebook with the study materials and his comments. He used his laptop for studying and his iPhone for recording his notes. He planned to use dictation and annotation software.

The best part of studying online for Kirk was the opportunity to study anywhere, anytime, allowing him to study when it suited him the best. He enjoyed learning, and after completing his undergraduate degree, he would likely continue to the master’s level.

Elaine. Elaine was an undergraduate student who had completed 29 online courses. She had a health condition that caused her mobility limitations and dexterity problems. She registered with the ASD office and received accommodations including course extensions, extra time, a quiet room, and ability to take a break during the exam, or write the exam over two days. Elaine was unable to spend extended periods in front of the computer, and e-texts presented a challenge for her. As an accommodation, she received hard copies of all materials, as well as a digital copy that was compatible with her assistive technologies. She used both to accommodate her learning needs. She found online studies flexible and was better able to pace herself than in other programs with set schedules; accommodations added to that flexibility. However, to ensure that she had all accommodations in place, months before the beginning of every course she had to go through a complicated, cumbersome, time-consuming and frustrating process with many steps and many barriers. She had to repeat this process for every course, although her needs did not change. Sometimes she had to delay the start of her course or begin without accommodations because they were not in place on time. Elaine also had many problems booking exams at the exam centres. As a student with disabilities she had to do more of the planning, communicating, studying, and training to use assistive technology.

Elaine's phone and email interactions with instructors were mostly positive and helpful. She believed that they were notified by the ASD office that she had disabilities. Some instructors were stewards of students' success and went over and above to accommodate her needs. But not all were ready to accommodate. One instructor did not allow her to call outside of typical office hours, even if her condition prevented her from calling. The same instructor marked her papers down for spelling and grammatical errors that were due to difficulties with the assistive technology. Elaine had to appeal all her marks in this course because she felt that she was unfairly penalized for faulty software. Her rights were protected under human rights legislation, but ultimately whether she received accommodation depended on the instructor's views. She had some challenges in which she has had to point out to the university its declared mission to provide education to all students without barriers.

The university departments that assist students, such as assistive technology and disability services, were key to Elaine’s success. The ASD advisors were very supportive, and working with them was her best experience of studying online. They had always been understanding, empathetic, and good listeners, but some new ASD staff were not like that. She had to advocate for herself and fight for every accommodation, often escalating it to the senior management level and once filing a complaint.

Her contacts with other students were limited. In one course, students interacted in the course forum, and participation was part of the overall mark. That created an opportunity for Elaine to connect with other students. She did not disclose to other students her condition nor that she used assistive technologies, because she feared possible discrimination. If she had had a peer group of students with disabilities, she would have exchanged experiences with them. Studying online was a bit isolating because she did not have contact with other students, but it gave her the freedom and independence to do courses at her own pace.

As a student with disabilities, Elaine had to be prepared to do a lot of extra work, to know university policies well, to research courses and processes that were going to affect her, to keep the names of helpful staff, to learn to advocate for herself, and to enjoy the journey! For her studying online was not only about learning specific materials but about developing as a person, having a social responsibility to help people see things differently, to understand differences and talents, and that standard ways of learning do not necessarily work for everyone. She really appreciated the efforts of this university to be accessible to students with disabilities.

Megan. Megan was a graduate student who returned to the online university where she had earned her bachelor’s degree after careers in arts and education; she then went on to earn a master’s degree at a campus-based university. She started her second master’s program to get intellectual stimulation while she was being treated for a chronic illness. Her illness resulted in several physical disabilities, pain, and fatigue, keeping her housebound. She also had learning disabilities. Online learning was important for Megan because it structured her day, and at the same time it gave her the flexibility to study when she felt well. It also gave her virtual social contacts, which were her biggest connection with the outside world, as she had lost most of her friends when her illness restricted her to her home.

Studying online for Megan involved open communication about her disability with students and instructors. She had always been open about her learning disabilities, demonstrating that a person with disabilities could be successful academically. She interacted with her colleagues in class forums and group assignments. She worked hard to make unique contributions to forums from a disability perspective, receiving recognition and validation from peers for doing so. Sometimes her forum posts were less timely, as she could not maintain the continuity of participation because of fatigue and disability. Through group work, Megan developed closer relationships with fellow students who were supportive of her participation. She always felt a responsibility not to let the group down. She would drop everything else to be able to participate in group work but struggled to keep up without accommodation. She felt respected, supported, and understood by other students, and capable of contributing, which was not the case in her physical life.

Megan's experiences with her instructors ranged from supportive to antagonistic. With supportive instructors, she felt empowered because they valued her contributions, respected her commitment to learn, trusted her with decisions about her participation and management of her disability, and kept open communication. Other instructors did not understand her disability and accommodations and questioned her integrity and ability to learn. More feedback and more individual time with instructors would have helped her to develop connection and interpersonal relationships. Even reading instructors' bios and profiles humanized them for her and made her feel connected.

Megan registered with the ASD office from the outset, but she did not receive many services. It was not always clear to her what they could do for her. The office developed accommodations that worked for her, usually extra time and reduced expectations. She used the ASD letter to communicate with new instructors about her needs, accommodations, and motivation to help them understand who she was as a student. She was not completely happy with the ASD office, but she trusted them that they would be there for her if she really had to fight for her rights. Her undergraduate experience had been negative, as the ASD office never managed to ensure that she received the accommodations they had recommended, especially around exams.

Megan could not use digital materials, so in her undergraduate program the ASD office had printed them for her; in the graduate program she did it herself. For her it would have been helpful if courses were purposefully designed to include a variety of materials such as videos, live sessions, and chats, which would help balance the text-based course materials. If courses had been better organized, streamlined, and pedagogically sounder with clearer rubrics and expectations, it would have been easier for her to navigate materials and locate information. Megan was a reluctant user of technology, although she increasingly relied on it. She used a laptop and different assistive technologies recommended by a specialized assistive technology clinic. She could not benefit from the government funding for equipment because it required still significant financial resources that she did not have.

Megan missed in-person interaction, as for her that was an easier way to learn. She felt a bit isolated because her disability prevented her from consistent participation. She had to be self-disciplined, self-directed, and focused. However, online learning gave her the sense that her life was moving in the right direction, which was important for her well-being. Her interactions with other students helped her become a new person whose new identity was shaped by her disabilities.

Paolo. Paolo was a retired professional in the final year of his master's program at the online university. He had lived with a disability for 40 years. Years before, he had started the program but had to withdraw for a host of reasons: deteriorating health, difficulties in managing everyday life, divorce, and independent living arrangements that did not work for him. At that time Paolo did not know about the ASD office and he did not consider himself a person with a disability.

Recently, his personal situation stabilized, and he moved to a long-term care home where his care needs were met, freeing up his time. The move was a trigger for him to restart his academic career. The flexibility of the admission system allowed him to return to his studies. He immediately registered with the ASD office. His ability to use his hands was limited, but he could type with difficulty. He used a wheelchair for mobility. Although his new shared living arrangements allowed him to return to online studies, it also became one of his biggest challenges because of noise, interruptions, and lack of privacy.

At the online university, Paolo felt well supported by his fellow students, his instructors, and the system. He interacted with other students in forums and work groups. There were no barriers to his participation in voice-based synchronous sessions, unlike in text-based chat sessions where he could not keep up. His contributions to forums were sometimes less timely and relevant because it took him longer to prepare and post them. He developed a system of preparing his contributions in Word and pasting them into forums to avoid losing posts if he was interrupted or the online session was timed out when he took too long to type. Sometimes he had difficulties contributing because he could not relate the topic to his background. Initially he was unsure of the value of his contributions, but with the support of his instructor and colleagues, he managed to make valuable contributions.

Paolo disclosed his disability to other students to help them understand his point of view. He believed that his different viewpoint added value to discussions. He found working with a larger group of students more successful than trying to work with one other student. The group work, course design, and use of synchronous voice-based sessions facilitated beyond his expectations the development of relationships and camaraderie among students, making online learning less impersonal and creating a sense of belonging. However, occasionally he wished for more virtual face-to-face session to overcome feelings of isolation.

Paolo also received support and encouragement from his instructors. With his last instructor, he disclosed his disability at the beginning of the course, maintained direct and open communication through emails and forums, and kept the instructor up to date about his progress and need for extensions. Although he felt resourceful in problem-solving, open communication with others brought new knowledge and new solutions.

All his requests were viewed positively and resolved by university personnel, who were flexible and positive and committed to problem solving. Through the ASD office, Paolo received accommodations including extensions on his assignments, assistive technology, and funding for equipment and training. These all helped with his difficulties in using his hands and his low energy levels and tiredness.

Paolo relied on his computer, a microphone, and headphones to eliminate barriers in his physical and virtual environments. With special noise-isolation headphones, he hoped to block out distractions from a noisy living space that he could not change. He hoped to get dictation software to help with writing longer assignments and his participation in synchronous chats and discussion forums. Funding for this technology had been delayed, and he would require training to use it efficiently in time to be ready for the next course. Paolo needed digital books and materials because he could not physically handle the printed materials. The availability of all readings electronically on the course website gave him access to the format of his choice without the need to request it as accommodation. Studying online was a very positive experience for Paolo because he always found ways to solve his problems, and he was confident that he would graduate in the next year. The ability to study online allowed him to balance his family life, travel, and study. For many people, the senior years are a period or decline, but for Paolo, studying online brought him to where he needed to be, to the path of self-fulfilment, successful aging, and a new career.

Jennifer. Jennifer was a graduate student, professional artist, writer, mother, wife, and disability advocate, and the first one in her family to obtain a university degree. When she acquired multiple disabilities that made her housebound, she had been depressed, and the adjustment to her new situation took years. She felt invisible among her family and friends who were unintentionally taking her voice away because of her new disability. Jennifer also had learning disabilities, and was dealing with the consequences of concussions. She became a successful disability advocate because she had to fight for her own disability benefits. What changed her life was starting the master's program at the online university. Jennifer had been insecure about her ability to use technology, but she learned in the program that she was actually a proficient user of technology. She used all the built-in accessibility functions on her laptop and tablet, as well as different assistive technologies. Being able to receive all course materials in digital format through the ASD office was life changing, making learning much easier for her. Because of her disabilities, she had developed a system of notetaking. She had 900 pages of searchable notes with references that helped her organize and learn the content.

For Jennifer the course-management platform was her learning community, and she took it seriously, expecting others to do the same. She responded to all posts, so it was frustrating when students did not respond to hers. This happened in every course, making her second-guess the value of her contribution. Usually the recognition would come much later, either from students or instructors. To help other students understand her better, Jennifer openly communicated about her disabilities, describing them in positive terms. Her classmates came to value her contributions from a disability perspective. She met some of her fellow students in person, and meeting the real people behind the virtual interactions helped her make closer connections. Jennifer was always cautious about group work because she feared that others saw her as a burden. She tested these feelings by starting a sign-up sheet for a work group, which filled up quickly with fellow students who wanted to work with her, showing her that her fear was baseless. Moreover, the group members highly valued her contributions and considered her their leader. Jennifer had only one bad group-work experience when she worked with just one other student, who was ineffective communicator. Generally, she found group work difficult, but she still liked it. It helped her to establish social connections and friendships.

Jennifer was more successful as a graduate student than in her undergraduate studies because she now received accommodation. However, she was ambiguous about accommodation, as she wanted to be like everybody else; on the other hand, accommodation and ASD support were essential for her success. She had positive interactions with instructors. Usually she did not go through the ASD office when requesting extensions; she communicated directly with her instructors, and they always understood, respected, and accommodated her.

Online learning gave Jennifer her life back and opened the world of opportunities in distance education. The program reassured her that she was a productive, intelligent, and creative individual who still had a purpose on the planet. She gained self-confidence and became more compassionate and empathetic. Her family started looking at her more positively, her mental health improved, she had a life purpose and a reason to be well, and she kept growing and doing bigger and better things. She had choices and flexibility that enabled her to set a study schedule around her disabilities, and according to her complex health, disability, social, and family needs. Technology-mediated distance education was freeing and emancipatory for her, virtually connecting her to the world that was otherwise inaccessible. Technology enabled her to study and be intellectually engaged, which gave her back her dignity and allowed her to take herself seriously.

Study Girl. Study Girl was a very active and proud graduate student, disability advocate, public speaker, and visual artist who had recently returned to her hometown, where she lived in a seniors’ building. She had multiple disabilities including learning disabilities, attention deficit disorder, mental health disorders, brain injury, allergies, and hearing impairments in both ears that significantly affected her studies. She was prone to depression and had problems with concentration, so she had to learn many strategies to keep her studying. Her hearing impairment meant she had to have a quiet learning environment, and she used hearing aids and assistive technologies to learn. She found watching videos with closed captioning useful for learning, and whenever she found an appropriate video, she posted it in the forum. Studying online was difficult until she got used to the course-management platform and learned ways to make regular contributions. She met some of her fellow students in person, which strengthened her connections with them.

The ASD office was essential for her. Their support enabled her to stay in the program by providing accommodations and advocacy with professors. Through the ASD office, she received assistive technologies, funding for equipment, and hard copies of all materials, as she could not use digital materials. She also engaged the tutor who had supported her during her undergraduate program.

Some instructors were interested in discussing with her at length her perspective on disability as it related to the topics in the courses. When she contacted instructors by phone, some were interested in speaking with her, while others were less so. Study Girl disclosed her disability because she believed everyone should have the same understanding of disability. Ironically, one professor who was responsible for a disability-related course questioned her ability to be a graduate student because she had a tutor and assignment extensions as accommodations. She complained to the administration that her integrity as a student had been questioned and her right to accommodation denied. The ASD office intervened on her behalf because she was stressed and almost dropped out of the program. She would like faculty to know more about disability, so they can better understand students with disabilities who learn in different ways.

Online learning gave Study Girl flexibility to study from the safety of her home and to protect her privacy by not being judged by others in face-to-face interactions. She also loved the flexibility of setting her own pace and study schedule according to her abilities. Through education she gained a lot of self-confidence enabling her to accomplish what she had not been able to when she was younger. Online education helped her to maintain her mental and physical health.

Rosemary. Rosemary was a graduate student and recently retired educator. She had been living for more than 20 years with a disability that progressively affected her capabilities. Rosemary used a scooter for mobility and was largely homebound in the winter months. She had recently started noticing problems with her dexterity and fine hand and finger movements.

She received accommodations through the ASD office based on the medical documentation that she provided at the beginning of her studies, and that was still honoured. The ASD office was always ready to help and listen to her. Her accommodations included a reduced course load and extensions. She requested a time extension only once, for her thesis proposal. Generally, her supervisor always responded quickly, but she felt she would benefit from more interaction, because sometimes she needed clarification and direction. She found instructors' participation in forums encouraging as they provided guidance and boosted discussion. She appreciated instructors who respected students and treated them as equals. She learned the most from one of her first instructors in the program who provided her with excellent feedback that was helpful throughout her studies. She had only one negative experience, with an unapproachable instructor who had neither empathy nor any understanding of disability.

Rosemary received encouragement from other students. She found the discussion forums intellectually stimulating. In independent study courses, she missed interactions with other students, as closer contact with other students would have been beneficial. She did not always disclose her disability to other students, although she believed that transparency increased understanding and eliminated assumptions about what a student with disability could or could not do.

She used a computer to study as well as phone, email, and Skype to connect with people including services at the university. Her contacts with the library were efficient. Technology made these interactions immediate, and she would like to be more proficient in using technologies. She felt that financial accessibility of online learning for students with disabilities should be improved.

The flexibility of the online program allowed Rosemary to study from her accessible home environment and to set her own study schedule according to her endurance and need to rest. Studying online removed barriers and gave her opportunities for self-development and improvement that she was able to take advantage of despite her disability. The program also helped her grow as a person through better understanding of her cultural identity and heritage.

Crusoe. Crusoe was a graduate student with two undergraduate degrees that he completed while in his thirties. He enrolled in this program because he was assured that his need for extra time to complete it would be accommodated, unlike at other institutions where he had previously applied. It took him long time to go through the program because of his illness and the breaks he needed to take, but that was the only way he could do it. Studying online was hard for Crusoe because he had to figure everything out in isolation from others. His instructors were helpful, but he found it difficult to remain motivated to finish a course. He had interrupted the course he was taking as he was going through a difficult time because of his disability, but now he had settled, and the course was going well.

Since he was nineteen, Crusoe had struggled with depression and a mental disorder that affected him throughout his career and studies. He found it hard to think clearly when on medication and to focus when in stressful situations. He also got overwhelmed with information. Initially he did not register with the ASD office because of the stigma of mental illness and a belief that he could do it without support. After he registered with the ASD office and they understood his problems, studying became much easier as they organized accommodations for him.

Crusoe reached out to instructors and disclosed his disability only when he went into a spell of depression and needed help. His instructors were always helpful. They were available, open, understanding, friendly, and supportive. He felt good about the support he got from them. They guided him and helped him to find other resources to supplement his learning. They were available and ready to communicate with him, direct him to additional resources, and give him the additional time he required to study. He usually got extensions or an opportunity to withdraw without penalty. His instructors asked students to phone them once or twice a term, which was useful for Crusoe in building mutual understanding and connection.

He used his computer and phone to study online, and no assistive technologies. The course management system worked well for him. He had difficulties understanding digital materials when reading on a computer screen. All the materials in his courses were text based, and he preferred hard copies. He did not watch videos as they did not work with the older computers and slower Internet connection he had.

He felt isolated and missed the camaraderie of students he had experienced in face-to-face environments. Online learning in groups worked well for him, but socially he did not make any friendships. They communicated well and resolved any miscommunication immediately. He wished they had more time for group work. He would like to have a campus-based course to meet with other students and instructors and get to know and understand them better.

Constituents of the Structure

In this section I present the constituents of the structure of experience that were developed in response to the main research question, and the sub-question What are the students' experiences of interactions with content, instructors and/or tutors, other students, the university system, and support services?

The core structure of the experience of interactions for graduate students with disabilities in online programs had five constituents: having access, working harder, being supported, being connected, and becoming. There were variations within each of these constituents as student with disabilities experienced them differently. However, although each student experienced constituents differently, they were irreplaceable part of their experience. Because of this intra-constituent variability, constituents are not described as a singularity but as a continuum that ranged from a lack of or a limited presence of the constituent to fully present constituent in participants' descriptions.

In this section, in the small departure from Giorgi's descriptive phenomenological method, I supported description of each constituent with a selection of quotes from participants' naïve descriptions of their experience. As a researcher I had to find a balance between following the selected methodology and the need to give a voice to students with disabilities. I believe that including the participants voices only in this section strikes that balance without compromising the scientific rigour of the study, as I clearly distinguished between my researcher's voice and the voice of participants. Participants' naïve descriptions supported the description of the constituents of the structure. This section sets the stage for the last section of this chapter that presents the description of the structure of experience of studying online for university students with disabilities, the main evidence generated in this study.

Having access

Key constituent of the experience of studying online for students with disabilities was in relation to *having access* to mainstream and educational technologies, as well as accommodations including assistive technologies, accessible formats of materials and exams.

Mainstream and educational technologies. Having access to various technologies were at the core of the experiences of studying online for students with disabilities. They used mainstream technologies, namely those technologies that were designed for general use and not specifically for students with disabilities. Having the high-speed internet and a computer is a precondition for studying online.

Students used mainstream technologies to study including computers, tablets, and phones, but relying primarily on computers. They also used mainstream software and applications such Mind Mapping and Evernote to support their learning, in a way using them as assistive technologies. For example, Walter and Flora who were not registered with the ASD office, used Evernote to help them learn by organizing materials. Walter described the importance of Evernote for his learning “I use Evernote heavily. Evernote is the first application I open in the morning and the last one I close when I go to bed.”

Educational technologies were a subset of mainstream technologies and in this study students described primarily their experience of accessing learning management system (LMS). Having access to LMS was important for both undergraduate and graduate students as it impacted their ability to interact with technology, materials and peers. Students commented on both design and technological aspects of the system. Some undergraduate students found that their online courses were well organized and easy to navigate and experienced the learning management system as space or location where they interact and learn. On one hand, Jennifer commented positively about technology "Once I learned how to navigate the University Moodle format, I have no problem with it. Now it just feels like my online University home, just as if I was going on campus to the brick and mortar university. I know where all the classrooms are." On the other hand, Walter was critical of the way how the university used technology as he felt that "they're sure not using that to the full potential". Other students found some courses poorly organized and complicated to locate correct information. Peter pointed out importance of simplicity and good organization for students with disabilities, he said:

> Keep it simple. There's no need for having references in 10 different places. We're spending quite a bit of money on tuition here, and what is really important is to have it streamlined so that there's a process that a student follows to get through the course instead of off in 10 different directions.

Megan was also frustrated with the organization of courses in the learning management system and their pedagogical grounding. She described her wish to reorganize them, "Some days, I wish I could make over the Moodle and the course material delivery in terms of the way that it's laid out and organized online so that it makes more sense."

In addition to organization and layout of courses, students with disabilities identified reliance on the text only in both synchronous and asynchronous discussions as another barrier in accessing mainstream technology for learning interactions. As a graduate student Paolo was expected to interact with other students and make his contributions in forums and chats. Because of inaccessibility of the LMS, his limited typing ability, and longer time required to make a post, his posts were less timely and relevant. He explained:

> The key is really it's more challenging for me to operate synchronously. An environment that requires a fast response from me is more difficult, really. So, asynchronous response where I can take my time and do the keying, correct typos and all those other things, works much better for me… So, and say my compromise is for most of my posts to the forum, I'll actually do them in a Word file first and then cut and paste them in because it allows me more time to fix up the typos, to organize them better. Now, the only issue then is while I've been doing that, two or three more posts have appeared from my fellow students, and they may well have even covered off a lot of what I was going to put in there. And so sometimes, I'm not as timely.

Accommodations. Having access to accommodations through the ASD office for almost all students with disabilities was essential for studying online with exception of Flora and Walter who did not register with the ASD office. Students received a number of different accommodations including assistive technologies (software and hardware), accessible materials, alternative assessment formats, cue sheets, extra time to complete a course/exam, tutor, reduced course load, a single contact person, and advocacy with instructors.

Assistive technologies were one of the most used accommodations as they were specifically designed to support the functional capabilities of persons with disabilities. Not all students with disabilities needed or used them. With the help of the ASD office students with disabilities identified the technologies that worked for them.

Isabel tried different technologies and found them all to be useful saying, “I found everything that I'm using to be helpful.” The next step after identification was obtaining assistive technologies. Students commented most often on financial barriers they faced because costs of these technologies were prohibitive making assistive technologies unaffordable for students with disabilities. Therefore, having access to financial support is critical for getting the assistive technologies they needed. Rosemary described her situation, “That is the biggest [problem] for me -- is the funding. I didn't get grants all along, and I still incur debt. I'm going to have a hard time paying it back.” The processes of obtaining financial support were not without difficulties. Paolo was approved funding for equipment, but he experienced the delays in receiving funds. He said, “The only problem is the cheque hasn't arrived yet. So, I'm just preparing to buy all the equipment, so I'll be ready for next [course].” Megan described her challenges with accessing funding for equipment,

> She organized a grant for me, and then based on her assessments, recommended the things that I needed, and then I got the quote from the vendor. But bringing it back, they still want me to pay all of the money for all of the stuff upfront, which is a problem, and then they're only going to reimburse 75 percent, so I'm still out of pocket about $1,000 for it.

Not all students faced barriers in accessing financial support for technologies they needed. Study Girl found the ASD office helpful in ensuring that she got the equipment through provincial funding. She described how the ASD office helped her navigate the system,

> They've also helped me with [technology]. I have a laptop that I get through our AT – Assistive Technology in the province. Because I live in this province, but because I have been affiliated with them before, they still look after things, but I have to go through the online University and then through the provincial service to get my equipment. So, they were very helpful…

Accessible materials were very often used accommodation. Some students needed digital materials while others needed hard copies. Megan commented on a misconception that digital materials were accessible, saying,

> Everybody thinks digital textbooks and digital compilations of articles are a great idea because it saves paper, but I need to print them out on paper, anyways, just to be able to sort and deal with the information. That's been one of the major, major, major, major, major barriers.

Elaine explained why digital textbooks were not accessible to her and why she needed the books and print outs of all materials,

> Part of my other accommodation is that the online university provides me the full text in paper. So, they provide me the books, they provide me, also, a CD disk which is downloadable either as a PDF file or as an etext so that I can use with my assistive technology. [Etext], it then puts me in a position that I have to be on the computer more… they've moved to etext for all their courses, I have to read my materials off of a computer, and that's an issue for me because I get migraines by looking at the screen for more than 30 minutes.

Linda said, “What I found with e-text is I'm printing it all, so I don't really gain much from the e-text.” Pete shared similar experience as it was harder for him to learn from digital documents. He said, “looking at the computer screen on a PDF file, it's harder for me to absorb it because I'm just looking at it and thinking about it.” He had to print out copies at his own cost as that was not one of his accommodations.

While having materials in accessible formats was essential for learning of all students who required them, experiences of obtaining them ranged from having to negotiate, plan and make requests to the ASD office well in advance of the course, to having alternative formats readily available to all students as Paolo described his experience,

> And that course has a textbook. It's not just based on electronic materials. So, I have difficulty reading a book. Being able to physically manipulate it. What I do is I put the book on the bed, and I hold the pages open, and lean over. Not an ideal situation. So, my first thought was, ‘Oh, I'd better contact somebody about the textbook in [this course]’ However, the textbook arrived with a note saying, ‘And on the course website, you will find an E-book version and a PDF version.’ So, that's going to be fully addressed.

Provision of accessible materials for some students was a long and cumbersome process, while for others materials in alternative formats were readily available without their request.

One aspect of this constituent unique for undergraduate students with disabilities because of the design of the program was their experience with having access to accommodations in the exams centres. Their experience ranged from no problems with getting access and accommodation to a range of barriers including delays because of a lack of quite rooms, to a lack of understanding of disability and accommodation needs among the staff, to problems in getting recommended accommodation. Megan spoke about being denied recommended accommodation at the exam centres,

> I found that with that, with the exam situations, I'm entitled to use a word processor to write my essay questions, but I was never, ever, ever, ever, ever able to actually get that accommodation at the exam centre and the ASD Office was zero help in figuring out how to make that happen. So, those have been the major, major challenge. I just did it without and I took a penalty for poor spelling, punctuation, all that kind of stuff. So, my grades are probably deflated 'cause usually if I don't use a word processor, I usually lose about 20 percent.

Isabel had problems with getting extra time at the exams in the exam centre that was conveniently located closer to her home because of their working hours. She described her frustrations,

> The one place close to my house, what I had a problem with is in the beginning, first of all, it was their hours. They would be open on Saturdays, and let's say the exam centre would be open from 10 a.m. to 1 p.m. Any student and any time [when] you write an exam you've always started an exam exactly at 10 a.m. No, they open the doors at 10 a.m. That means if there's 20 students in line, they have to register all those 20 students. You're not writing your exam until 10:30, technically, if that. Because I get extra time, usually, I'll be writing from 10 to 1; like, literally 'til they close, but I'm still not getting the full time I'm allocated. I've lost more time again.

Kirk Morris spoke about his problem of getting a quiet room for exams at the centre close to his home,

> They don't have a room where I can have a private room ascribed as that's accommodations for my testing. I now need to go to other locations to do such, but that's a major frustration because last time I took a test, they said, ‘Oh, we'll have one room ready for you for your next test.’ Tried to book it and they didn't have anything available.

Elaine shared similar difficulties that caused delays for her, “I've had a lot of delays with booking the private exam room for the exam, too. Up to six weeks ahead of time, I've had to book it because it's fully booked with other students with disabilities.”

On the other end of the spectrum of experiences of this sub-constituent was Sandra who did not experience any problems with the exam center as all her accommodations were in place for her, “They're always good about having a quiet room for me, and I get the extra time to write it. They'll always have the agreed-upon copy of the cue sheet.”

Working Harder

Working harder is a constituent that recognizes additional tasks that students with disabilities had to perform just to be able to engage in interactions with materials, peers, and instructors. *Working harder* encompasses commitment to learning and all the extra efforts that students with disabilities had to make such as planning, communicating about disability, organizing, and learning how to use technology in order to level the playing field and be able to learn as any other student without disabilities. All sub-constituents of this constituent are closely related, intertwined, and overlapping.

Planning. As described in previous constituent *having access*, students who required accessible materials had to plan and negotiate with the ASD office about their needs well in advance of the course. Elaine described the process of obtaining materials in accessible formats as cumbersome, long, and time consuming, that made her work harder for every single course she took, and required a lot of advanced planning and constant follow up:

> If you wanted to see the course material package to make that decision about whether you take that course, you have to order it. And it's very cumbersome process to do that because you have to do that through the library. Then once you've reviewed the course, you have to put in a request with the Disabilities Department to have the materials requested for you. And part of the issue is even if you're registered as a student with disability, you have to do this each and every time that you take a course. So, you have to fill out their necessary paperwork, their processes, and then it goes to the Assistive Technology Department, and then they review it. And then, even though I e-mail them back and forth, they tend to do everything in piecemeal because it's almost like every course that they have, they don't necessarily have all the printed materials. There has to be an assistant assigned, and then she has to go through the course package and she has to go through everything to print off everything and/or to put it on a CD. So, it's kind of like a one off. If I apply for a course, then they have to go through the whole course and then they have to print off all the materials. They have to go to their budgets to get the books, they have to always ask the same questions, "Did you get a grant for any of the finances for the printing?" And when I say no, then their Department has to get it approved through their internal processes in order to give me the materials. Sometimes they say that they weren't able to get materials,

> and then I have to turn around and I have to e-mail the Manager of the Disabilities Department to say, ‘I'm having this roadblock. Could you please deal with this issue?’ because it's too frustrating for me as a student to try to deal with a department who's telling me that they can't print off materials because of their budgetary constraints. That's the other thing. It's sometimes two to four months ahead of time, and if I don't give them that 60-days notice, that means that I don't necessarily start my course when I want to start the course. Sometimes it has to be pushed back. They're working on that deadline of the months that I want to start my course on.

Students with disabilities also had to plan for other accommodations they needed well in advance as described by undergraduate students with disabilities accessing the exam centres and presented in previous section under *Having access to accommodations.*

Unlike undergraduate students who had limited or no interactions with their peers, graduate students with disabilities were required to interact with other students. This interaction required additional efforts on behalf of graduate students with disabilities, because some of them had to drop all other activities or work harder just to keep up with the group work. Megan spoke about her experience,

> So, I think that the group work is really challenging because I really drop all the other components of the course to focus on the group work and because I know that those people are used to working in a not-disabled way, and I want to be able to be seen as holding up my end of the bargain.

Although the group work worked well for Crusoe, he found it challenging to keep up with the work and required more time. He said:

> That works quite well. I do have some trepidation that I wish sometimes they would give us more time to work together. I realize it is a course and it has to be done if you're doing a group study course which has to be done in four months, and there are time constraints. Sometimes I wish there was a bit more time that you could work together with a group of people that you've been assigned with.

In the group work Jennifer spoke about somewhat similar feeling to Crusoe’s feeling of trepidation. She was conscious of her disability and the fact that her group might have a different pace that was hard for her keep up. She explained it,

> I am always wary of group work because I'm disabled, and I might not be able to function at the same speed or keep up with my work the way that everybody else does in a group and I'm always afraid I'm going to pull my group back. But the truth is I work harder than anyone, and the minute I'm up, I'm up, and I hit the ground full running super hard.

Furthermore, students with disabilities had to plan their communications with instructors and peers about their disability, as these interactions took considerable amount of their time and efforts.

Communicating. Students with disabilities spent significant amount of time communicating about their disability with instructors, service providers, and other students, that were additional tasks they had to perform. All students, except Flora and Walter who did not register with the ASD office, communicated with service providers and/or instructors about their disability. While undergraduate students with disabilities disclosed their disability to instructors mostly to get necessary accommodations, graduate students communicated about their disabilities to help others understand them and their positions better. Kirk Morris made sure that his instructors were aware of his disability and accommodation needs at the beginning of each course in order to avoid frustrations and stress of not having accommodation in place. He explained,

> I'm up front [in disclosing my disability and accommodation needs]. They get my profile from the Access Learning Department, and I make sure that they have gotten it, because I just don't want to get to the point of halfway through the semester working on an assignment or studying for a test and the panic sets in, and me having to explain my needs for accommodation at that point. It's a mere frustration, and we get frustrated enough just to get up and say, 'Ah, I'll leave this for now.'

At the beginning of each course Megan sent to her instructors an introductory message to help them understand her disability, her needs, and her motivation. She described the content of her message,

> I talk about how my ... studies are one of the most important things in my life and I'm really motivated, but if I'm out for a week or I'm out for a couple of days, it's not because I'm not doing my work. It's because I'm coping with my disability.

Like other students, to ensure that she was understood and that her accommodation was in place, Sandra had to contact every instructor to request accommodations. She found this process humiliating and invasion of her privacy as he put it,

> What I'm basically having to do is every single time before I write an exam, I'm having to talk to someone with no medical training who I don't know and explain

> my whole medical history, and it's just humiliating. It's really horrible. And then to try and have them understand it.

Crusoe felt a lot of stigma attached to mental health issues, so he contacted instructors regarding his disability only occasionally when he thought he needed help. He explained, “I only mention something if I believe it's necessary. When I'm going through a bad spell. And I think I need some extra help or for them to understand why I'm so slow getting my assignments done.”

Graduate students with disabilities and undergraduate students with disabilities who had group work in their courses, communicated with the colleagues about their disability. Crusoe was selective about disclosing and would talk to other students only if he felt that they were open to it. He described it as intuition “Sometimes I do if I get the impression from talking with them that they would be open to that, but usually not. I have an intuition. And just from the way they write and talk, and talk about their life and their experiences.” Rosemary feared that she would be discriminated against and explained “I'm not sure if I will have respect if I disclose who I am or what disability I have.” Elaine shared Rosemary’s view and did not disclose her disability to other students because of potential discrimination and misunderstanding,

> 'Cause I think that there's a possibility for discrimination. Maybe the misconception that I've been given special treatment when in fact I haven't because I've had to have the same merit as a student to accomplish my course as another student, but in fact, I've had to actually probably work harder because of the challenges that I've had.

Some students spoke openly about their disabilities with colleagues as they saw the disclosure of disability as a way to build relationships and mutual understanding. Study Girl explained her reasons to be open about her disabilities with other students,

> I just feel that we should all be on the same wavelength and understanding about disability, that it's not hidden. That it should be out there in the world. I know that some people have difficulty and don't want to disclose their disabilities, but I feel that the more you do disclose, the more other people are learning from you how it is to be a person with various disabilities.
>
> I always put right up front that I'm a student with disabilities, and I outline some of it; not all of it. But some of it. And then when we're doing the weekly back and forth discussions, if there's something that comes up on a disability issue, I will put down what I know about that issue, as much as I know about it, so that there can be back and forth interaction, and that's actually been very positive. [I disclose to my colleagues] because I feel that it's going to help them understand me.

Organizing. Students with disabilities made additional efforts to develop systems to learn in order to overcome the challenges they experience because of their disability. These systems were often laborious and time intensive, but they were the only way they could be successful learners. Majority of students took extensive notes, highlighted, color coded, and tagged materials while going over it numerous times. Kirk stated, “I like some courses actually come with a textbook, so I can actually do the physical, with my hand, highlighting. I find that is almost a sensory exercise that lets me focus on highlighting, reading and remembering.” In order to memorize Pete described how he learned and his “need to write everything down. I think maybe I used to be able to read a lot more and absorb it. Now, I have to write stuff down a little bit more and memorize it.” Jennifer took detailed notes, generating over 900 pages of searchable notes about materials she had read with full references. Peter made notes on flipcharts and put them up on the walls. Flora used index cards. She also took detailed notes in Evernote, like Walter. While Flora could memorize huge amounts of information, Sandra struggled with materials because of her memory problems, so she tagged all materials, developed cue cards, and practiced exams repeatedly until she would answer all questions correctly noting the types and pattern of questions.

All students identified study approaches that suited them the best and developed systems to organize materials, both of which required them to make additional efforts just to be able to study as students without disabilities.

Learning how to use technology. Students also needed to learn how to use technology both mainstream and assistive technologies as Isabel described, “This is another thing I realized too: assistive technology comes in many different forms, and sometimes certain ones, you need to actually sit down to get the full benefit of use and be trained on it.” The technological skill level of students ranged from having minimal skills to get by to being proficient users of technology. Linda’s interaction with technology was a minimum to allow her to complete the course requirements. She described it, “I don't want to do anything to it. I just want to do my stuff and get it done. I am the least technology applied person you could ever meet in your entire life.” Rosemary also did not consider herself a very knowledgeable user of technology, “I'm not very computer savvy, which I wish I was a little more”. On the other end of the spectrum was Isabel who used assistive technologies and built-in accessibility features on her equipment. Taking a course made Jennifer aware of her skills, “What I'm learning is, through this course, even though it's a fairly basic course, is that I'm actually quite proficient.” The technological skill level, although varied greatly among students, was enabling factor for them to be successful online learners.

Being Supported

Being supported by instructors and tutors, student support services and fellow students was a key constituent of the structure of experience of studying online with a disability. Like other constituents, experiences of *being supported* students with disabilities described to be on the range from limited or no support to full support. This intra-constituent variability was present in descriptions by different students enrolled in the different programs at the online university, as well as in the descriptions of experiences given by the same student about interactions with different instructors, support personnel and peers. *Being supported* was important part of their experience for all students.

Instructors. When describing their interactions with instructors, students with disabilities characterized their experiences from being adversarial to being fully supportive, and everything in between. Megan spoke about the range of experiences she had with instructors,

> So, they've ranged from really awful to really, really amazing… at one end I've had really critical instructors who make me justify every accommodation and why I might use it in an accusatory way that feels like they're accusing me of not being organized or being lazy or procrastinating. And at the other end, I have had

> instructors who trust me to be able to manage my own situation through the course. And there's been a lot of middle areas. It's been a full spectrum.

Study Girl described a range of experiences she also had when interacting with instructors, saying,

> The telephone conversations that you can have with instructors and that, I found some of them to be very different. Some instructors really want to talk to you… And there's others that I really got the distinct feeling that I was not as interesting as they either thought I would be or I knew too much.

Linda did not have many interactions with tutors because she felt uncomfortable asking questions and she feared their reactions. She described her feelings as follows,

> I very rarely talk to my tutors. Usually, I think I'm scared because they're going to think I'm stupid or something. I'm scared to ask a lot of questions, and normally, I'm a very personal person… Actually, I could probably say out of all my classes, I've maybe only asked questions maybe four times.

Walter did not have many interactions with his tutors and when he did, he felt that many were not positive although he recognized some of his positive experiences. He stated,

> I don't, really [interact with my tutors], and I've had a very poor experience with my tutors… For the classes I've taken, almost all of them I have found to be of no help. It seems like they're always rushed. I'll send a carefully-worded e-mail and I'll try to go well out of my way to make sure that everything is there, it's clearly worded. I send it off, and then three days later, the reply I get, I can tell that they just skimmed over it, and that the answer is not helpful. That happens so often

> now that I don't really go to the tutors for help. I should say that I've had a few tutors that were really good, but for the most part, that's not the case.

As he often could not get answers from his tutors, Walter used social media to get needed support. He explained,

> Something I've started doing is asking Reddit. On Reddit, there are lots of different places you can ask math questions or computer questions, and the help I get from those places is well beyond what I get from tutors. I get answers immediately, and I can ask for follow-up questions. It's a lot more helpful to me. I go to Reddit a lot, and that usually gets me, partway there, and then I find other textbooks that cover something similar, I search on the web.

Linda described how she turned to her friends for help instead of instructors. Although here friends were not subject matter experts they were available to provide her with the immediate feedback. She said,

> They're just smart friends. I go, 'What do you think about this?' Or they read all my stuff before I send it in, and that, so I go 'Am I on the right track?' And they don't even know what I'm talking about, but they go, 'Oh, sounds okay.

Not all faculty members were supportive, flexible, and available to students. Some students with disabilities struggled with that as they needed more guidance, timely feedback, or ability to get quick answers from the faculty to be successful in the course. Adversarial interactions developed mostly around accommodation requests. Peter described a conflict situation that usually developed around his accommodation requests,

> When I experience a confrontation, for example; I've asked for an accommodation, the accommodation has not been approved; [and] it doesn't seem

> like anybody is willing to work with me and to create a solution that will be acceptable to them and will accommodate me, my disabilities, I go into a fight place, right? That's part of my disability.

Students described adversarial interactions as those in which instructors questioned learning and accommodation needs, and integrity of students, as well as their ability to study because of disability. In these interactions students with disabilities felt that because instructors had neither understanding of disability nor accommodations they declined the ASD recommended accommodations or presenting students with modified accommodations that did not meet their needs. Instructors were not flexible and did not look for solutions within the existing rules. The next quote from Sandra is an example of adversarial interactions that was based on a lack of understanding of disability and accommodation and her need to defend her integrity and ability to learn,

> [It frustrates me the most] dealing with people who cannot understand that I've been hurt and that the things that I'm having to do to level the playing field so that I can get through this course are the things that I have to do for really clear reasons… Their disbelief about how someone would go into a test with a cue sheet is like -- I said to the last board chair, ‘Look, I'm an ethical, principled person. This isn't me attempting to cheat. This is me attempting to level the playing field between me and a group of people who don't have the memory issues that I have...’

While some accommodations such as extra time and quiet room were common and approved without problems, students requesting alternative knowledge assessments and cue sheets faced some problems. However, not all students requesting cue sheets experienced adversarial interactions like Sandra did. Kirk never had a problem getting the approval of his cue sheets. He said that his experiences with approval of cue sheets was “pretty good. It seems like the course coordinators contacted Accessible Learning and wanted to understand it before they say, "No, no, you're just taking in answers."

Paolo felt that all his needs were accommodated and praised positive, problem solving attitude among at the online university personnel. He described supportive interactions with his instructors,

> My experience was that when I identified potential issues and problems and so forth, the general message coming back was, ‘Oh, that won't be a problem’ … I did find that everybody I've dealt with has been very supportive when I've had bumps in the road and -- though nothing that couldn't be overcome this last course.

Megan spoke about supportive interactions with instructors as those in which instructors showed flexibility and respect for the students, recognized the value of their contributions and ability to manage their disability in the learning environment. She said,

> instructors who say, ‘You make good contributions, you have good ideas, we can see that you're eager and willing to learn and engaged in the program, so just take it at your own pace and make whatever decisions about your participation that you need to make, and we won't count that as a mark against you as long as you just keep us in the loop.’

For Linda getting positive feedback from tutors was reassuring that she *can do it*. Isabel emphasized importance of the positive feedback from her instructor, saying,

> One report that I shared… was my whole experience using assistive technology. And it was really positive when the professor came back and said that she really, really liked my piece and wanted to know if she could use it as an example in her other classes. So, to me, that was encouraging for so many reasons because for example, writing is not my strongest suit.

Rosemary described supportive interactions with one of her professors as follows,

> The professor, he was a student helper … he always offered suggestions on how to improve. I probably learned most from him. He just gave so many examples of how to improve your writing, how to improve your thought process throughout your presentations and the assignments. He was just so good. He was probably one of the better ones; one of the best. That was probably the second course I took. What I've learned from him I could use right throughout all my courses. That's how invaluable the information he gave. I would like to see more instructors having that, but I guess that was maybe his unique gift. But it was good.

Crusoe also spoke highly about his experience of being supported by instructors, their openness, help and flexibility. He elaborated,

> [Instructors] they were very open and amicable to taking the time off, and also to help getting through certain sections of the courses that I've taken. And they've just -- they've been top notch, and they're a lot different than some of the instructors that you will find at traditional institutions where they say when something's due, it's due right now, and there's no if's, and's or but's.

Pete described his mostly email interactions with instructors were “very good;

very good responses, very fast, very professional." Elaine mentioned that some professors were doing more than expected. She stated, "those professors that are highly attached to their positions and wanting to be stewards of success for students, they do tend to go over and above."

Being supported by instructors was experienced by students in the range of adversarial and less supportive to fully supportive interactions. Experiences on this spectrum were described by all students, most of whom had experiences that fall on the both ends of the spectrum with different instructors, tutors and faculty. Namely, they experienced both fully supportive and adversarial/less supportive interactions.

Student support services. Description of experiences of *being supported* by the student support services were primarily based on interactions with services of the ASD office. Students described it on a range from experiencing less supportive to experiencing very supportive interactions. Less supportive interactions were characterised primarily by an inability of the ASD office to ensure that students with disabilities receive accommodations the ASD office recommended. Some students felt that they did not know how the ASD office could help them. On the other end of the range were experiences of interactions with the ASD office that students described as supportive and invaluable because the ASD personnel was available, responsive, knowledgeable and understanding.

Elaine emphasized the importance that student support services had for her and other students with disabilities by stating "The people at the university in the departments that are supposed to be assisting you, whether it's assistive technology, whether it's the data centre that provides your materials, whether it's the disability department, those are key people in your success as a student.” Kirk described support in organizing his accommodations and having “the general understanding of me needing accommodations”. Study Girl used the ASD office advocacy support when they worked with instructors to improve their understanding of her accommodations. Study Girl had a personal tutor who worked with her a couple of times a week to keep her organized and as she explained the ASD office “…actually helped me out with some that didn't understand why I had [a tutor].” Rosemary felt supported by the ASD office because of “The openness and willingness to help, willingness to listen.” The ASD personnel were knowledgeable of the university system and how to support students to navigate it as Kirk explained “They knew how to walk around the dotted lines and just were able to stay on track with me.” For Crusoe “The services I've received from them have been terrific. They've been very helpful when I cannot complete a course and they let me shut it down and start over again whenever I'm ready.” Crusoe also added that the ASD personnel understood disabilities as

> They were very helpful, and they understood my problem right away, and there was nothing I could be worried about. They contacted the professors, and I also contacted the professors when necessary and everything has just worked out fine.

Sandra relied on the ASD office personnel for all her accommodations and appreciated their support. However, she felt frustrated with the system in which the department heads who were not trained to deal with disabilities make the final decision whether the accommodation approved by the ASD experts in disability and accommodation would be approved. She stated, “But they're putting all the responsibility for whether or not I get to write my exam on that one person where I've already been approved by the school for the use of the cue sheet...” Peter also felt that this was problematic as he explained, “the student's placed in a position where, instead of focusing on their studies, they have to implement the appeal process and fight their way through it.” Linda used many student support services, but she was wondering if there were other helpful services that she had not used because she had not known about them. She explained,

> 'Cause I don't know what to ask for if I don't know what they can do. I'm sure if I ask the right questions, I might get the right answers, but if I don't know, if I have no idea seeing what they can do, I'm not going to even think to ask it. And especially when you're fairly new you're just overwhelmed already as it is.

For Jennifer, the support from the ASD office was essential for her being successful student but she expected quicker responses from them.

> ASD is fabulous. I would like it if their response time to students was a little sooner, which indicates to me they might need more staff. But the people I have dealt with there; they're fabulous. I couldn't do this degree without that office. I shouldn't say couldn't. I wouldn't want to. It would be a lot more difficult for me to do it. Maybe I couldn't do it. No, I need them. I need them. No, I do. I need them. Yeah. No, I need them. They're big. I need them. They're important.

Walter and Flora did not register with the ASD office because the registration process was cumbersome for them and they could not see clearly how they could benefit from their support. Walter only needed extensions that he got by contacting instructors directly, so he did not see the need to register with the ASD. He said, “because I'm able to work from home, I'm able to take the extra time, and so I didn't want to go through the hassle." Flora stated that "I called them to inquire on how to do [register] that, and it was such a big pain in the butt that it was not worth my time, and nor would I receive any sort of special benefit from that."

Students. Due to the different expectations and opportunities for interactions with peers in undergraduate and graduate online programs, the sub-constituent *being supported by students* is described differently by undergraduate and graduate students. Like other constituents, experiences described fall on a spectrum, from no interactions to being supported by other students. The main channels for interactions with other students were discussion forums and group work. Undergraduate students described only one or two courses in which they were required to interact in forums with other students, while for graduate students, the peer-to-peer interaction was integrated in almost all courses. Overall, students with disabilities enjoyed the support they received from their peers. Undergraduate students pointed out how it helped their learning while graduate students described it as feeling understood, valued, and respected.

Some students had no or very limited interactions with other students in their programs. Sandra had some courses that required interactions but she for her it was not an important aspect of online learning. She explained,

> It all depends on what people are wanting to do and whether they'll respond or not. So, you might post something, and you might get a few comments, or nobody comments -- as far as I can see, unless it's a mandatory aspect for the course, then you get marked on it. It's hit or miss whether people take part. I can't say that that's a big issue for me. I don't care about that at all.

Although Linda did not have many courses in which she interacted with other students, she described the value of those rare peer-to peer interactions she had,

> I found that it was nice 'cause I still remember their names. And then I found that I learned from them also. I said that class where I saw other people's work. I learned, I probably learned more from that than I did from the course, for sure. I think that's the part that's missing is the input from everybody.

Only Walter and Flora had negative experiences of discussion forums because they felt that forums were neither interactive nor timely for their learning. Walter explained "you have one forum for a huge area, and then it seems like no one's ever looking at it at the right time or there's just not a lot of participation. It certainly doesn't feel interactive in any way." Flora gave a similar description

> With this University, their approach to having students interact online was just to have a forum where you're given a question for that unit or chapter, and then you have to go into the forum and answer it and maybe comment on the other students' contribution. But that's not interacting. That's not having a real dialogue in real time.

Graduate students were mostly positive about their interactions with fellow students. Megan spoke about understanding and respect she had gotten from her colleagues. She described her colleagues in the program as "… people who, for the most part, understand where I'm coming from, but also appreciate my thinking and my ideas. I feel I have something in that situation to offer and to give which I often don't in my physical life in my interactions with other people."

Paolo was happy to interact with other students and contribute as he put it, “Generally speaking, through the forums, I'm quite happy to respond and talk where I feel I can add value.” For Rosemary interactions with other students were helpful as she explained “I think that offers encouragement, and sometimes I think I need that.”

Students also spoke about some of the challenges in interactions with other students. Crusoe explained it by describing an instance of miscommunication saying, “I've had just one instance where there was a bit of disagreement between a student and myself -- but that was clarified right away, and it was just a quick mistake. It was a joke that was made, and I took it out of context.” Paolo described his experience when he had difficulties with a fellow student,

> It was more challenging when it was just the two of us. The person I worked with strong issues with only being available at certain times, and sometimes it was difficult for us to connect over Skype effectively, so we were just using text messaging through Skype.

Jennifer felt strongly about silences in forums “when people put up posts and nobody responds to them in any way” and commented about forums as “our education community for this class… So, I am always the person in my class that responds to everyone. I make sure no one is ever left out there in the lurch.”

Being Connected

Students with disabilities described their feeling of *being connected* on a spectrum from feeling isolated to feeling connected. Feeling isolated was mostly the description provided by undergraduate students although some graduate students felt various degrees of isolation. However, isolation did not necessarily have a negative connotation because for some students isolation was their choice. On the other end of the spectrum were students, mostly graduate students, who felt connected. They built relationships through interactions in forums and work groups. While some did not make any friends, others managed to establish long lasting friendships.

Being isolated. For Sandra studying online is “a very isolating way to get your education.” Elaine recognized that studying online isolating but also liberating, as she described both sides of her experience,

> it's a bit isolating because you don't have that peer contact of other students unless you choose to reach out to other students in the course if you have that component that you have to have like the postings, and use the Moodle. On the other side, it gives me the freedom and the independence to do my courses as I am able to at my own pace.

Pete also felt this freedom and independence that allowed him to focus on topics he considered important. He said, “Because, for any given course, I'm just learning stuff for me at this point in time. With other students, I don't know where they are in terms of their background, or whatever.” Linda explained her feeling of isolation “I feel a little bit isolated in some cases. But that's my choice kind of thing.” She felt isolated when she needed guidance and direction as she put it “That's the interaction isolation I sometimes feel is that I don't know if I'm doing this right.” Linda described her feeling on isolation “I'm a university student, but I don't really have a university”. So, she decided to join the Student’s Facebook group pointing out her reasons ‘Just trying to contact, trying to get that contact with other students and seeing if they were having problems with stuff, or just trying to keep updated. Just to a little lessen the isolation a little bit.”

Studying online with all individual responsibilities that the student had to take was isolating for Crusoe as he described “Sometimes it's difficult… You're used to doing classes in situ, at an institution, and you know what's expected of you right away and you get things done when you go to the class. But this time, it's all on yourself.” Linda also commented about an isolating lack of immediate feedback by saying, “Sometimes, I miss being able to say to somebody, ‘Hey, how did you do that?’ You know, it's that what I miss.” Megan felt a bit isolated only when she was writing assignments or taking independent study courses. Sometimes isolation was a result of her inability of to interact with other students because she was not feeling well. She explained that feeling isolated for her was related to both the features of online learning and her disability, “It might be a bit of both [disability and studying online]. It might be a little bit of both. I think the disability makes it harder because it's really just hard to be consistent.”

Being connected. For Megan studying online was a life-line and the main connection to the outside world through interactions with students and instructors. She explained,

> It's an essential connection that I get to my classmates… And then I also get a connection just in the back and forth and feeling that I'm interacting with other human beings, I'm having conversations about the course material… So, the feeling that I just have other people, humans in my life who I feel even just a brief dialogue; just the back and forth, it gives me a feeling of connection… And I find, too, with [instructors] the more I know about them, the more connected I feel to them …

Jennifer also described studying online as her main connection to the outside world. She said, “technology, distance education and distance synchronous, asynchronous meetings, my goodness, this is my portal to the world. I can go Monday to Friday, 7:30 a.m. to 4:30 p.m. without seeing another soul unless I'm online.”

Some students successfully built closer relationships with some of their colleagues, particularly through the group work. Paolo described it “Four of us worked together on an initial collaborative project, and we had some delightful Skype sessions planning that, and that really helped me to feel part of the group. We connected and have a bit more of an understanding of the experiences of the people around me.” Group work was essential for Jennifer to develop friendships with her fellow students. She explained “I always get frustrated at having to do group work, but by the time it's over, I'm so glad we did it. … I have made some life-long friends out of those experiences.”

Some students had a chance to meet their classmates in person, and the both described those encounters as key to establishing long lasting friendships. Study Girl commented “I actually have met some of my fellow students and [I am] in touch with them in my own life. That actually has enhanced the experience because I've met them now. It's not just somebody that I have experience or interaction with online.”

However, not all students managed to develop closer relationships and friendships with their classmates. Crusoe described his experience,

> I really haven't made any concrete friendships, or anything, because it's so diversified with people, and everyone's doing something different in their lives. They've working, or they're working on the course, or they have a family, or

> they're travelling and working on the course. It's hard to make concrete friendships. Basically, I'm just by myself.

Flora felt frustrated by the fact that she could not develop any connections at this university. She pointed out “that is one big, bad thing, because I spent $20,000 for one year of education there and I did not get one friendship out of it, or one networking connection, or anything.”

Becoming

Studying online for most of the graduate students and a couple of undergraduate students was a transformative experience which they described as *becoming*. They spoke how online learning helped them become healthier physically and mentally, more confident, mora accepting and more engaged, become a new-self, personally and professionally. Students described becoming more self-confident by (re)gaining their life purpose, dignity, pride, or understanding of own disability. Students spoke about their renewed identities and renewed careers.

Jennifer described changes in her mental health that her husband noticed, “My husband says you can clock the changes in me and my mental health improvement, too, 'cause I was getting depressed prior to all this. It's just improved exponentially since I started this program. I just keep growing.” Study Girl pointed out, “I gained a lot of self-confidence that I never had when I was younger.” Rosemary described how online learning enabled her to grow and develop making her feel like a contributing person despite her disability. She said,

> I can better myself. I can still strive. So much in real life or everyday life, there's so many restrictions, whereas with the online studying it removes the restrictions.

> It offers more opportunity… So often, with disability, when people look at the disability in real life. They don't see the whole person. They look just at your disability, that you're walking slow, your walking, and they somehow equate that with possible mental disability. Or are unable to think or reason. Where it's when I do an online course, and particularly when I complete it, I feel like I've conquered quite a bit and still am able to function and contribute to society despite the disability. It helps me to rise above the disability and still function normally to some extent. I contribute.

She attributed her becoming capable of maintaining her physical and mental health to online learning and art therapy. Study Girl stated, “I go out to the community and speak about my disabilities and how the art therapy and my schooling has helped me stay quite healthy; mentally, physically.” Studying online helped Isabel truly understand her disability and become aware how it impacted her learning. She explained,

> Now, I was able to understand why I had a hard time writing an essay, why I was never the greatest in math, why I was never the greatest in math and what it means to have -- why I have weak working memory and why that's so important to the whole learning aspect. I feel like that course alone and just even the whole program helped to fill in the holes that I never really had growing up or in general in my life.

Rosemary became more aware of her ethnic identity that shed the light on some of her life experiences. For Pete, it was about getting different new insights into subject matter that he was studying about because of his acquired disabilities. Pete explained “I have a different insider perspective -- with my disability now than when I didn't have it before… because of my new insight, the learning has been important to solidify, my belief in my subjective experience.”

Megan spoke about how the interactions with her fellow students helped her in personal transformation and becoming a new person who embraced her new disability identity stating

> I'm in this transition from who I was to who I am going to be. And I'm really open about it because I find that suggestions and things that my course mates have to say are often helpful in feeling understood, people getting where I'm at.

Jennifer pointed out how studying online made her become more self-confident “I know that I am a productive, intelligent and creative individual that still has purpose on this planet because of this program. And because of what I'm doing. I might even go on and do a Ph.D.” Like Jennifer, Kirk also mentioned his plan to continue his studies “I do have to admit I enjoy learning, and I think maybe after this program, I'll take a few months, but I could see myself signing on for another distance education program for my Master's. Yup. I want to be an expert eventually.” Although in his senior years, Paolo experienced renewal of his professional life and becoming engaged in a new field, as he explained “I am at a period where I’m finding I can do more than I used to do but in a different area in a different way... For the moment, I would say I'm feeling very upbeat and I'm really looking at it as being my time and launching myself in a new area.”

Studying Online with Disabilities: Barriers and Facilitators

In this section, I present findings on barriers and facilitators which students with disabilities experienced while studying online that stood out in the naïve descriptions of students with disabilities. I use quotations to provide evidence for better understanding of what might prevent them from interacting or enable them to interact in the online learning environment.

Barriers

Students experienced barriers in learning interactions when there was a mismatch between their needs, university policies, and the processes that they had to go through to get their needs met. Students experiences the following barriers: processes of accessing accommodations, inconsistencies in providing accommodations, a lack of awareness of disability, accommodations, rights and obligations among instructors, responsiveness of the system to students' inquiries, and over-reliance on a single mode or an activity in the design of courses. Identified barriers were in relation to students' interactions with instructors and the system with barrier free access to accommodations and the overall support system and infrastructure, being their primary concerns.

Accessing accommodations. The process of accessing accommodations was described by Sandra as *humiliating*, *horrible*, and *invasion of privacy* as she had to disclose personal detail about her disability to course coordinators to make them understand why she needed accommodations. Elaine spoke about the cumbersome, complicated and unnecessary process that she had to repeat for every single course even though her needs were documented by the ASD office and remained the same. She pointed out "myself as a student, I've had the same needs for accommodations". What students also found problematic was that the final approval of the ASD recommended accommodations had to come from the course coordinators or department heads who sometimes did not have adequate understanding of disability, accommodations, rights and institutional obligations. Sandra explained her feelings about this process and the role of department heads

> They aren't trained to deal with what they're being asked to deal with, and I'm not quite sure. I suppose it's that they're seeing the head of the department is going to be aware of the learning objectives where the disabilities folk may not know that. They're putting all the responsibility for whether or not I get to write my exam on that one person where I've already been approved by the school for the use of the cue sheet, but they always preface it with it has to be approved by the head of the department.

Inconsistencies in getting accommodations. Students with disabilities had to negotiate with every single instructor or course coordinator for every single accommodation recommended and approved by the ASD office. For example, Kirk described the process of getting his accommodation, the cue sheets. He had to submit the cue sheets for approval a long time before his exam making it difficult for him to have the right cue sheets because he had to submit the request before he studied all materials. He said that this process "… at times can be frustrating because I'll study for that month and then I would want different stuff on the sheet. But I submit it through my teacher, and usually, the course directors will review it and they'll approve it or not." Because the final decision-making power over whether a student would receive accommodations or not remained with individual course coordinators, the same accommodations were approved by some and not approved by others, making the access to accommodations inconsistent. Looking to the future Sandra commented,

> I would like them to design a mechanism that's fair, that once they agree that they're accommodating me, that they actually do it without me having to go in and fight with them all the time. I don't think I should be put through this, every time

> I have to get ready for an exam. Talk about stressful. It's bad enough having to write the exam, but I think I dread the fight I'm going to have to go through every time, worse than the exam.

Elaine noticed inconsistencies between courses she took from different departments. She explained, “because they're more sensitive to human rights law and labour laws, they're more accommodating. But when I fall outside of […] and the courses that I take from an elective perspective, those professors don't seem to have the same understanding”.

In addition to inconsistencies in ensuring that students with disabilities received the ASD recommended accommodations, the university policies about the response time were not always implemented for students with disabilities. Elaine explained, “So even though the university has certain policies with regards to turnaround times with respect to things; if you're a regular student, you should be able to book an exam within five days, but that's not the case with a student with disabilities, because there were not enough accessible rooms at all exam centres.”

Understanding of disability. Instructors’ attitudes towards and their knowledge of disabilities and accommodations were barriers experienced by students. Assumptions that some instructors with professional background in health or disability would have been more accommodating proved to be wrong for a couple of students. Study Girl pointed out an experience with one instructor who taught a disability related course and questioned her use of a tutor as accommodation which was approved by the ASD office and the University, “This professor didn't understand why I had somebody like that. This is a very, very, very ironic situation because the course was on [disability related matter].” Peter described a similar experience,

> One situation is that there's a course coordinator that is actually a registered [health professional], and nonetheless seems to be of the opinion that students with disabilities should be expected to function and perform at the same level or in the same way as other students. He seems very opposed to any accommodations.

Elaine pointed out how a lack of understanding of disability could prevent students of getting instructor’s support if the instructor had inflexible contact hours. She said, “When you have professors that have these limited call-in hours, and they are only saying -- 'cause I did have one professor before where they would not allow you to speak with them outside of those call hours.”

Rosemary described her feeling of not being understood by her instructor who could not understand the difference and was not empathetic, she stated:

> I had one instructor that I don't feel she understood. I don't feel she understood the difference between races. I didn't figure she understood the difference between cultures or I didn't think she understood the difference with disability, either. I thought she was arrogant, unable to put her feet in other people's shoes.

Over-reliance on text and text based interactions. Another barrier that students experienced was over-reliance on text and text based interactions. Alternative format of text whether it was digital or hard copies, was often requested accommodation. Paolo had difficulties in participating in text based interactions because of his disability, while

Flora and Walter did not see them as meaningful interactions which contribute to their learning. Peter pointed out the need for choices,

> I think the university needs to realize that all students don't learn in the same way. So, that means that if you have one evaluation method the students that don't learn that way aren't going to do as well as the other ones. Some students learn visually, so text works for them. Some students learn by hearing. Text doesn't work for them. Some people learn by experiencing something. Text doesn't work for them. I think that there needs to be multiple options for presenting information for an evaluation method.

Pete recalled how using videos in one of his courses was very beneficial for his learning. He described his experience as following,

> Some of the things that I've liked at the online university, I remember I took one course, and they had a video… you can replay the video as many times as you want. And see, with my illness, I utilize that a lot. I played that video over and over again to make notes. I can do it at my own time, on my own time and I'm not stressed for time.

He also spoke about his preference for real time sessions that he did not have at this university. Pete referred to his experience at another distance education program saying, “the other university, it's all distance education -- they do have live sessions, and you can chat. You can chat with other students or ask questions to the instructor interactively.”

Facilitators

Students with disabilities described what enabled them to study online. They spoke about how knowing themselves helped them learn in the online environment. Flexibility was another facilitator that helped students to be successful online learners. Students described it as a multidimensional concept including flexibility of time, people, processes, infrastructure, course design, and funding.

Knowing yourself. Students with disabilities described that being self-directed and knowing own strengths, weaknesses, needs, and rights facilitated their learning in the online environment. Megan said,

> I think you need to be your own best advocate. I think you need to be really self-aware of your needs and limitations. I think you need to have the ability to be self-directed and you need to have the insight to know when to invoke your accommodations or to ask for help. It's the element of really ‘Know thy self’ that I think is probably more prominent than people who have an easier time learning.

Knowing yourself was also important for Isabel and she suggested asking yourself a series of questions,

> What do [you] want right now? You want to go to school to get an education, but what are you trying to pursue? Do you want that whole in-the-classroom experience? Do you want that student lifestyle where you can commute in or live in on campus? Or are you wanting the education because you want to advance in your career or your life but there's a certain lifestyle of your life that you want to maintain right now that you're not really ready to give up?

Students with disabilities had to manage their expectations. Sandra explained that students with disabilities need to be fully aware of their rights and ready to fight for them "Make sure that they get their accommodation outlined really, really clearly and make sure that they get ready to fight, and not to sit quietly if somebody says no to them." Elaine emphasized that students with disabilities in order to succeed have to be ready to work harder than others, and know themselves, their needs, as well as how university could meet those needs. She said, "Be prepared to do a lot of extra work, be prepared to be knowledgeable of the policies of the university to see how they can assist you and accommodate you." In addition to knowing yourself Paolo added that as a student with a disability he needed to be a good communicator to be able to get the support from the university, "The first thing is definitely talk with the ASD office and understand just how much is there for you". Crusoe agreed about the need to communicate with the ASD office. Study Girl who was a disability advocate spoke about importance of knowing her rights to be able to study online "understanding that I had a right to these different things [accommodations] that I could get help with my disability." Kirk spoke about his rights through a feeling of being equal and having rights to accommodation, "I feel, quote-unquote, 'like an equal'. I go through the same difficulties everybody else does. They just are ready to accommodate my difficulties."

Peter pointed out that sometimes it was challenging for him to know himself and to identify the problem. He saw it as part of his disability and commented,

> What I was going to say is that part of my disability is that I can't always explain exactly what I'm coming up against or what I'm experiencing. I have good days and bad days, and when I'm feeling overwhelmed or when I'm feeling like I'm

> stuck in something and I don't know how to get out of it on my own, I'm not always able to say, ‘Well, I wasn't able to do that exam because...’

Paolo described a similar challenge of *not knowing what he did not know* about services and technologies that could have been helpful to him,

> I feel that I'm quite good in finding ways through things, and it's quite often there are things I don't know. Like one fellow said, it's not knowing what you don't know. Not knowing the easy way of doing this than the one I've chosen. And with hindsight, there have been times when there was an easier way. I just didn't see it.

Isabel shared similar views, “I only knew to ask for the Disability Services, look for it because of my [previous] experience in university. If I didn't have that experience -- and [this is] my first time in university, I didn't even know to look for this, the Disability Service Centre.”

Flexibility. Flexibility of online learning was described by students with disabilities as a key facilitator of their learning that allowed them to make choices that worked the best for them. Flexibility of time and people were at the core of their experience, seen as a dynamic interplay with processes, infrastructure, course design, and funding which enabled students with disabilities to succeed in online university.

The ability of students to set their own pace and study schedule was essential enabler as they could plan their studies around their disability and lifestyle. Linda emphasized the importance of setting her own pace by saying, “It's my own speed, and I'm much more comfortable at it. I don't feel my anxiety doesn't kick in because I'm not keeping up or I don't understand, and that I quite like.” Students had a choice and opportunity to decide when they were best capable of learning and participating in learning interactions. Peter described his view of the online learning,

> I think the greatest advantage is that I can adapt my studies to my needs. A lot of my disabilities, one of the things I struggle with the most is not being able to sleep, for example. So instead of having a set schedule where I have to attend classes at a specific time, I can basically work on my courses when I'm capable of doing that. And take time for my health when I need to take time for my health.

Kirk shared his experience by pointing out the convenience of the program that fits into the schedule of his life, “I’ve been able to almost schedule my life, not around it but been able to manage it a bit more and work at my own pace. 'Cause I also then don't have to adhere to anyone else's schedule.” Rosemary spoke about flexibility of setting her own schedule stating,

> I can set my own time schedules. I can make a time schedule. I do a lot of my work late at night because I don't get interruptions. I do it on holidays, I do it weekends. My schedule is not the normal schedule. I can do it according to my rest and according to my -- what do you call it; endurance. I can set priorities that way, where with going to a regular university, I have to honour whatever schedule they have set for me. There are certain schedules with the online, but there's more flexibility. This online university is the only university that I have taken online with, so I'm having good experiences with them in terms of being flexible, honouring the disability part.

Crusoe added another dimension of the flexibility of time by elaborating on the opportunity to take as long as he needed to complete courses. He described his experience with this online university as follows,

> I found this program by a lot of research and by also being declined from a couple other programs that wouldn't take me because they thought I would take too long to do it. And this one has been very amicable to let me take as long as I want to finish up the program.

Linda spoke about the flexibility of studying online that allowed her to take only one course at a time and advance through the program. She said,

> Because of my anxiety, I get overwhelmed really easy, and then I can't remember anything. So, what I found for me to work, I have to do my courses just one at a time. So, for instance, I only have one course going. As soon as I'm done that course, then I go to my next course. I can't do two or three courses at the same time 'cause I just can't I'm unable to focus.

Almost all students made similar comments. Isabel summarized it, “You literally work at your own pace and make school go around your schedule and your lifestyle, period.” This included the flexible design of undergraduate program that permitted admissions every month, or time extensions on courses, assignments, and exams, and ability to learn and participate in learning activities at any time that suited them the best. Isabel pointed out that “If you're ready to start in March, you just make sure you pay the fees by this day. If you want to start in April, you could do your studies literally at your own pace. You don't have to wait for a new semester”.

The flexibility of time was intertwined with the flexibility of infrastructure which students could access anytime and anywhere. Kirk pointed out that he liked,

> Being able to study anywhere. With the world generally connected by the internet anywhere you are except for if you're up in Timbuktu, I like that. And the fact is on the way home from something, I can -- if I want to open up my laptop or open up my mobile, I can read and study something.

For Study Girl flexibility of online learning allowed her to study from the safety of her as she explained, “I don't have to get myself all dressed and go outside. I can stay within the safety of my apartment. And I don't have to be out there worrying if people can tell I'm just not exactly doing that well.” Pete explained how studying from home allowed him to be in the environment without distractions, “It's good because I do it in my own home. It's very, very quiet here without a lot of stimuli. So, I can focus and it's quiet.”

Paolo described the flexibility of the admission process, “Despite the time I got two failed courses, ones I hadn't completed, they were prepared to let me back into the program, after taking far longer than normal, and restart my studies.”

Isabel gave examples of other flexible processes that were helpful for her as

> They offer the contract course extensions. If you don't do well on an exam -- that was one thing I had a couple months ago. I didn't do well on an exam and I fail -- which lowered my mark to a failing mark. They give you an opportunity to try again. So, I feel here, they're really focused on student success where I feel like maybe in other environments, they're just focused on your tuition.

Peter talked about the need for a creative and flexible implementation of policies to accommodate needs of students with disabilities. He said, “Obviously, policy needs to be followed but it comes down to whether or not a faculty member or an administrator is willing to approve a creative solution that follows the policy but still resolves the issue, and to work with the student.”

The flexibility of people was essential for students with disabilities. When talking about the flexibility of people, Peter recalled his positive experiences saying, “the courses that I've been the most successful in are the courses where the instructors and the course coordinators and the other faculty are willing to create a solution when there's a problem. And aren't so rigid with policy.” This problem-solving attitude was also praised by Isabel who really appreciated the university’s positive, non-discriminatory, and inclusive attitude, "It doesn't matter who you are or what you are capable of doing, we could still help you." Megan recalled her interaction with an instructor whom she had informed about her need for more flexibility as she could not always participate as expected due to the fatigue. She explained how flexibility and trust of the instructor were empowering her,

> I think her e-mail back was the most positive, and it just felt like she was telling me that she trusted me to know what to do. Trusted me to know what the right thing was to do, and that her opinion was much less important, that she just needed to be kept in the loop so that she just had an understanding of what was going on in the moment. But it was empowering. It felt like she was my ally instead of an antagonist.

Flora appreciated flexibility and responsiveness of her instructor who returned Flora’s call from holidays and on a different occasion gave her a choice of times to connect. She said:

> I remember her being on a holiday across the world, or across the country, or somewhere, and she still called me on her holiday to answer my question. She also made a time. There was one point where she called me, and I wasn't available to answer, and she left a message saying, ‘Call me back and give me two times that you're available.’

Rosemary described how flexibility of her instructor who provided responses quickly helped her move forward when learning saying that because of her disability, “Often times, I need clarification. I find that the professor, though, the supervising professor, he responds very quickly, so it's good. That part is good.”

Peter gave an example how flexibility of people and processes at the university helped him overcome challenges. A senior administrator was assigned as a single contact point for him to help him problem solve. Following is Peter’s description of this creative and flexibly support that he received from the university when he faced a challenge he could not resolve through regular procedures:

> I've worked with one person especially. She's the [senior administrator], and my experience with her is that she recognized fairly quickly my process, which was to… shift from working with to confronting and becoming reactive and combative. I've seen over time that she has this way of not directly engaging that that's where I am, but being able to help me shift to working together again. Honestly, I think I probably would have been kicked out by now if I wasn't

> working with her, because it just would have continued escalating and continued escalating and continued escalating until I became so frustrated and angry that I would have done something that was really inappropriate and disrespectful. Fortunately, it didn't get to that point.

Structure as a Whole

In this section I describe the structure of experience of interactions for all participants. The application of the descriptive phenomenological method allowed me to build on individual descriptions and the *explicitation* (Giorgi, 2009, 82) of individual structures of experience and to describe the structure of the phenomena.

Learning interactions of students with disabilities in online university programs were situated within a broader context of technological advances that created new opportunities for them to pursue higher education online. Students with disabilities took advantage of flexibility of online learning by accessing mainstream and educational technologies from safe and accessible home environment. The key enabler of their engagement in online learning was having access to these technologies. Students with disabilities had different levels of skills to use technologies. Some were proficient users while others were reluctant users of technology or knew just enough to get by. Educational technologies, primarily learning management system where online courses were housed, provided a learning space and community where students interacted with materials, peers, and instructors. Simple, organized, and streamlined course webpages were easy to navigate. Some students with disabilities found it challenging to locate information in the LSM if courses were not well designed, pedagogically sound, and available materials were repetitive and abundant. Over-reliance on text was a barrier for some students who could not use either digital or printed materials. It was also a barrier to timely engagement in text based synchronous or asynchronous interactions for students who had dexterity problems.

To be fully engaged in online learning students with disabilities required access to range of accommodations that removed or mitigated barriers in their learning environment that prevented them from interacting with materials and people. The support they received from the ASD office was essential for identifying and negotiating their accommodations. Assistive technologies and materials in alternative formats were most commonly mentioned accommodations. Funding for technologies was a barrier for some students, as they were on limited income. Students also used alternative assessment formats, cue sheets, extra time to complete a course or exam, tutor, reduced course load, a single contact person at the university, funding and advocacy with instructors.

Students recognized access to education as University's mission and their right, but they found the process of accessing accommodations cumbersome, complicated, and repetitive. Some students had full access to accommodations they needed; others had to fight for the same accommodations. Two things frustrated students the most in the process of accessing accommodations: the uncertainty created by leaving the final approval of the accommodation in hands of course coordinators who did not always have necessary understanding of disability and accommodations; and the process of requesting accommodation that students had to repeat for every single course and every single exam. Although the process was long to get them, some accommodations were readily approved like assistive technologies, alternative formats of course materials, course extensions, extra time on exams, and a quite room. Extra time and quite rooms were not always ensured for all students because of the limitations at the exam centres. However, students with disabilities had to fight for other ASD approved accommodations such as alternative formats of exams, cue sheets for exams, and a tutor, as course coordinators declined them on a basis that they would undermine the academic integrity. Individually, students felt that their right to have accommodations was not always fulfilled as implementation of accommodations was inconsistent between courses they took. There was also inconsistency in ensuring accommodations across the programs as some students had full access to them without any problems while others had to fight to obtain them.

Students with disabilities felt that they had to work harder just to be able to study online on an equal footing with other students without disabilities. For example, the process for getting accommodations required a lot of planning well in advance of the beginning of the courses or exams they took. They also put significant time and effort in communicating about disability. Students communicated about their disabilities to get accommodations and improve understanding of their disabilities among instructors and peers. Some students were happy to disclose their disabilities as they felt that it helped build mutual understanding, respect and relationships. Some students were selective and reluctant to disclose because of stigma and the fear of discrimination, while some found it humiliating to disclose their disabilities over and over again to instructors whom they did not know.

Fatigue, pain, anxiety, inattentiveness, and memory loss were just some of the issues students had to overcome when studying online with disabilities. They had to make additional efforts to develop systems of organizing their work and materials just to able to learn. Students took extensive notes, used color coding and highlighting, tagged and indexed materials, developed cue and index cards. Each of them found the best way to learn. Depending on the level of their computer skills, students also had to spent time learning how to use assistive technologies in addition to learning about mainstream technologies like students without disabilities.

Students with disabilities expected to have supportive relationships with instructors, fellow students, and support services. They acknowledge, however, that the feeling of being supported ranged from experiencing no or limited support to full support. Individual students had a range of experiences with different instructors. Instructors who were available, accessible, responsive, efficient, emphatic, respectful, and trusting supported students with disabilities as stewards of their learning success. On the other end of the spectrum were instructors who were inflexible, judgemental, did not trust students with disabilities, questioned their accommodations and ability to study. Although most students experienced being supported by their instructors and praised their openness and problem-solving attitude, almost all students had at least one of these adversarial experiences. Some students were so deeply affected by those negative interactions that they considered dropping out of the program. Feeling of being supported by instructors was on a continuum that included both positive and negative experiences. Most of the students experienced both end of the spectrum and everything in between.

Student support services constituted part of experience of being supported, with the ASD office being the most relevant for students with disabilities. Students felt that they were being supported by the ASD staff because of their empathy, responsiveness, availability, and understanding and knowledge of disability, accommodation, and university system. In these supportive relationships students with disabilities were frustrated not with the ASD staff but with the policy and process of getting accommodations that was unnecessarily long and repetitive, and which left the approval of accommodations not in hands of the ASD experts but the instructors who did not always have necessary knowledge and understanding of disability. However, some students were not fully aware how the ASD office could help them. Some students described less supportive relationship as one in which the ASD office was slow in responding because there were understaffed. They were frustrated when the ASD office was not successful in advocating with instructors who declined to provide recommended accommodations.

Students with disabilities who had an opportunity to interact with fellow students experienced being supported by their peers. Although undergraduate students had fewer opportunities to interact with other students in forums and group works due to the design of their programs, they got the taste of support they might receive from their peers. However, many were not successful in building closer relationship with other students or expanding social networks because of very limited interactions they had. Nevertheless, these interactions helped them learn and for the most part they missed it. For some students, no interaction with peers was a matter of choice, as some undergraduate students with disabilities expressed their appreciation of the flexibility afforded by not having to interact with peers in their courses. Graduate students with disabilities valued learning interactions with peers, and described it in terms of mutual support, understanding, respect, and ability to expand social networks. Students had very few negative experiences in interactions with their peers, mostly linked to receiving no response to their posts in forums, and easily resolved miscommunication.

Ability to access technology and establish supportive relationships enabled students with disabilities to feel various degrees of being connected with others in the online learning environment. Some students felt isolated either by their choice or because of a combination of their disability that prevented them from consistent participation and isolating nature of online learning in which students were distanced from each other and instructors. They did not establish personal and social contacts with other students or expanded their social networks. Other students managed to establish lasting working and personal relationships with fellow students through group work and face-to-face interactions being contributing factors.

Almost all graduate students and few undergraduate students described studying online as a transformative experience. Students became more self-confident because online learning allowed them to regain their life purpose, dignity and pride. They became more aware of own identities including understanding their disabilities and family backgrounds. Online learning had positive impact on their physical and mental health and well being. It helped students with disabilities transition to new careers. For students who recently acquired a disability, online learning played a role in transition from who they were to whom they were becoming as individuals with disabilities.

Students who self-identified as having a disability but did not register with the ASD office had a different, mostly negative, experience of studying online. Although they had different disabilities they felt that registering with the ASD office would not give them any benefits. They were proficient users of technology who felt that the

University was not maximizing the potential of technologies to teach students. They worked hard like other students with disabilities and they were highly organized learners. These students expressed frustration with a lack of support and interactions with instructors as well as with the use of the call centre to deal with course related inquiries. It was slow, impersonal, and inefficient. They did not have many interactions with students, and those they had in asynchronous forums they did not find to be relevant, timely, and helpful for their learning.

Chapter 4 Summary

In this chapter I described individual experiences of students with disabilities who took part in the study, and presented the explication of key constituents that made the structure of the experience of interactions for students with disabilities in online university programs. I also presented their experiences of barriers and facilitators they had faced in online learning environment. The structure of experience of interactions for undergraduate and graduate students with disabilities in online university programs had five constituents: having access, working harder, being supported, being connected, and becoming. The first four constituents were part of experiences of all students, while the last constituents becoming was prominent primarily among graduate students with disabilities. Having access, working harder, being supported and being connected were constituents that had a high intra-constituent variability. Experiences of students fell on a continuum of the constituent rather than being described as a singular experience for all. Students experienced the following barriers: processes of accessing accommodations, inconsistencies in providing accommodations, a lack of awareness of disability, accommodations, rights and obligations among instructors, responsiveness of the system to student’s inquiries, and over-reliance on a single mode or activity in the design of courses. Facilitators that helped students with disabilities in online learning environments included knowing oneself and flexibility. In the last section of this chapter I presented the description of the structure as a whole including a negative case of two students with disabilities who did not register with the ASD office.

In the next chapter I discuss findings in relation to the existing body of knowledge, and point out the unique contribution of this study to the field of online learning for students with disabilities.

CHAPTER 5 – DISCUSSION

In this chapter I discuss the findings of my study by answering three questions: *what, so what*, and *then what*? The findings are discussed with the view of delimitations and limitations of this study. This is a descriptive phenomenological study which has generated a rich description the structure of experience of interaction for university students with disabilities who study online and not its interpretation. The method used in this study allowed me to develop the structure and its common constituents for a diverse group of participants, achieving a level of generality and the potential for the findings to be applied in similar situations. However, although there is a level of generality in findings, they are not generalizable. The study is also limited by the fact that the participants were self-selected, older than the average student population at the same university, and the study did not include participants who were deaf or blind.

First, I describe *what* the findings of my study are in relation to the existing body of knowledge. Second, I answer the *so what* question by situating the findings of my study within the policy context. Third, by answering the *then what* question, I reflect on the theoretical inspiration of this study and how its findings could be used to theorize on disability and online learning. The purpose of this study was to describe the experience of interactions for students with disabilities in online university programs. The methodology used precludes me from making any theoretical or policy claims. However, I discuss its findings in relation to these two areas as well because I believe that the generated evidence could be useful to inform both policy and theory development in the future.

What: Answering the Research Questions

This study is a response to calls for more scholarship on students with disabilities in higher education (Denhart, 2008; Fuller, Healey, Bradley, & Hall, 2004; Heindel, 2014; Peña, Stapleton, & Schaffer; Seale, 2010, 2014). Its contributions are a methodologically rigorous description of the structure of lived experience of interactions for students with disabilities in online university programs, including their interactions with materials, peers, instructors, and the system, and a description of barriers and facilitators that shape the online academic experience of students with disabilities. The structure of experience of interactions for such students has the following invariant constituents: *having access, working harder, being supported*, *being connected, and becoming* that is a constituent of primarily graduate students' experience. These constituents make up the structure of experience of interaction; without them the structure would collapse.

The constituents are experienced differently by each student with disabilities. To capture all the data from my study, I describe the constituents on a continuum ranging from no or limited presence to a significant presence of constituents in students' experience. The description of constituents as a continuum rather than a singularity is an important aspect of this study. The intra-constituent variability can be seen on one hand in relation to the diversity of students with disabilities, and on the other hand can be related to inconsistency in meeting students' learning needs, as each student had a range of experiences in different courses while interacting with different instructors. That is, intra-constituent variability may be related to individual circumstances and can described on a continuum because students had different disabilities and consequently different needs. On the other hand, the finding that some students whose needs were the same throughout their program had different experiences in different courses points towards the presence of environmental factors. This latter finding corroborates those in a study of students with learning disabilities in a virtual campus that showed that students' performance was affected by both personal and environmental factors, as students were both successful and unsuccessful in completing learning tasks (Hollins and Foley, 2013). Similarly, several studies reported that the technology-related needs of students with disabilities were generally met, and identified both individual and environmental factors as affecting the extent to which student needs were met (Fichten, Nguyen et al. 2010; Fichten, Asuncion et al., 2010; Fichten et al., 2012).

While no other research has described the experience of students with disabilities on a continuum, a study of the experience of students with invisible disabilities describes their experiences as multifaceted and dynamic (Mullins & Preyde, 2013). The literature identifies that students with disabilities are not homogenous but are a diverse group of individuals with a variety of learning needs (Evans et al., 2017; Kim & Aquino, 2017; Peña et al., 2016). This diversity poses a challenge to instructors and support-service providers to create learning environments that are inclusive and barrier free and accommodate the individual needs of all students with disabilities (Peña et al, 2016). Describing the experience of interactions for students with disabilities as a continuum accounts for the diversity of both individual and environmental factors that shape the academic experience.

This study expands our understanding of access for students with disabilities, because participants described having access in a broader sense that includes access to mainstream and educational technologies they could use and afford, as well as having access to accommodations including assistive technologies and accessible formats of materials and exams. Some studies reported that students with disabilities were reluctant to request accommodations because of stigma and privacy concerns (Denhart, 2008; Heindel, 2014). Participants in this study shared these concerns when describing the procedures and process of requesting accommodations. This finding also encompasses the financial accessibility of technology, choices that instructors make related to the format of materials and students' assessments, and procedures for accessing accommodation; it supports findings of previous research reporting that accessibility is not only a technological but also a pedagogical and administrative issue (Seale et al., 2010). The importance of this finding is that it provides further evidence to support the claim that technological, pedagogical, and administrative issues should be considered when addressing access and accessibility for student with disabilities.

Working harder is an invariant constituent that represents all the efforts that students with disabilities had to make in order to succeed in online learning environments, including planning, communicating about disability, organizing, and learning how to use technology. This constituent is in agreement with the findings of a phenomenological study by Denhart (2008), which identified that students with disabilities worked longer hours than their peers without disabilities. It also shares similarities with findings of a study by Wald et al. (2009), in which they point out unique aspects of experiences of students with disabilities; these include needing to learn at the beginning of their university careers about assistive technologies; having less time to learn than students without disabilities because of disability-related issues; and needing to use technology effectively and in an agile way to assist learning. In contrast to the study of Seale et al. (2010), which found that students with disabilities relied on their digital agility – which they expressed as extreme familiarity with technology, use of a wide range of strategies, and a high level of confidence in their ability to use technology – in the present study, technological skills and confidence varied greatly. Some students had just enough technological skills to get by, while others were proficient and confident users of technology. None of them described themselves as extremely familiar with technology. Seale and colleagues (2010) suggested that a range of technological, personal, and contextual factors affected the decisions of students with disabilities as to whether to use technology. These factors vary from computer skills, computer literacy, and the perceived properties of technologies to feeling stigmatized by using specialized technologies. My study findings are generally in line with those of Seale et al. (2010) that a range of technological, personal, and contextual factors affect the use of technology by students with disabilities. However, my findings differ in which factors affect those decisions. Students in my study did not mention stigmatization as a factor in deciding whether to use technology, because the nature of studying online did not make their use of assistive technologies visible to others. Instead, study participants described technological, personal, and contextual factors such as financial affordability of technology and time to learn new technologies as factors influencing their decisions to use technologies.

An interplay of different technological, personal, and contextual factors also influenced the need for students with disabilities to work harder in order to succeed in an online learning environment. Interestingly, in the constituent *working harder,* personal factors related to the individual's experience of disability mostly influenced *organizing*, because students had to create individualized systems for organizing the materials to accommodate their individual disabilities and learning needs. Technology often played an important role in enabling students to create systems that worked for them. Although *planning, communicating*, and *learning how to use technology* were related to their individual disabilities, these aspects were primarily linked to contextual and environmental factors. For example, university procedures required students with disabilities to communicate about their disability and plan well in advance to get accommodations they needed to study. If students needed an alternative format of materials as accommodation for their disability, in some cases they had to engage in a prolonged exchange with various departments to ensure timely access to materials. Therefore, based on this study, the technological, personal, and contextual or environmental factors such as those identified by Seale et al. (2010) in relation to use of technology could be employed to further explore the constituents of the experience of studying online for students with disabilities.

Being supported by instructors, service providers, and students was one of the invariant constituents of the structure of experience of studying online with disabilities. Students described their experiences on a continuum from adversarial and limited support to full support by instructors, from less to more support by services providers, and from no support to full support by fellow students. It is not surprising that *being supported* is a key constituent of the structure of experiences, because other research has shown that students with disabilities who access more support services tend to have better outcomes (Belch, 2011; Moisey, 2004).

Students with disabilities highly valued interactions with instructors. They gave examples of interactions with instructors who were respectful, flexible, and responsive, as well as examples of adversarial relationships. Most students with disabilities described both positive and negative experiences. This finding implies inconsistent implementation of accessibility and accommodation policies across university programs, leaving it up to individual instructors to decide how accessible their courses would be and what kind of accommodation they would approve. It is also worth noting that almost all students had at least one negative experience of interactions with instructors. Those interactions affected some deeply, to the point that they considered dropping out of their programs. Students linked negative interactions with instructors' lack of understanding of disability and accommodation. This link corroborates the findings of previous studies that reported that faculty and staff have different levels of knowledge and understanding of disability and of their responsibilities for disability and accommodation (Asuncion, Fichten, & Ferraro, Chwojka, Barile, Nguyen, & Wolforth, 2010; Gladhart, 2010; Phillips, Terras, Swinney, & Schneweis 2012).

Students with disabilities described interactions with service providers as mostly positive. Some students remarked that they would not have been able to study online without support from the ASD office, describing their interactions with individual service providers. These findings are in line with a study that reported that individual faculty or disability service providers played a major role in the academic success of students with disabilities who completed on-campus programs (Baber, 2012). Students with disabilities perceived the ASD office staff as experts on disability and accommodation, corroborating the results of research showing that most disability service providers were confident in their knowledge of disability and accommodation (Asuncion et al., 2010; Phillips et al., 2012). The only time when students described their interactions with the ASD office as less supportive was when ASD office personnel could not ensure that the student received the recommended accommodations. Although Asuncion et al. (2010) reported that there was a perception among faculty, e-learning specialists, and disability service providers that accessibility and accommodation were the primary responsibility of the ASD office, this finding suggests that under existing policies and procedures, although ASD office personnel are experts in disabilities and accommodation is their perceived responsibility, they cannot ensure that the accommodations they recommend are put in place without the approval of instructors. This finding supports the call for clarification of roles and of who is responsible for online accessibility initiatives and policies at educational institutions (Linder, Fontaine-Rainen, & Behling, 2015). Recognizing that there is a positive relationship between institutional distance-education goals aimed at improving learning outcomes and the frequency of requests for accommodations by students with disabilities in online courses (Barnard-Brak, Paton, & Sulak (2012), and that more support for student with disabilities improves their learning outcomes (Moisey, 2004), and despite the perception of faculty, e-learning specialists, and disability service providers that disability and accommodation are the primary responsibility of disability service providers (Asuncion et al., 2010), my study findings suggest that administrators, instructors, and ASD service providers all have a role and responsibility in ensuring accessibility, accommodation, and support for students with disabilities.

Researchers have explored the importance of student-to-student interactions in online learning and its relation to perceived learning. Student-to-student interactions have been shown to be positively associated with perceived learning (Joksimović, Gašević, Loughin, Kovanović, & Hatala, 2015; Marks, Sibley, & Arbaugh, 2005). Despite this research evidence, a case study by Kellogg and Smith (2005) revealed that professional MBA online students were indifferent or negative towards this type of interaction and its importance to perceived learning and satisfaction. In my study, participants described student-to-student interactions in online programs as experiences ranging from no interactions to being supported by fellow students. The level of interactions and support depended on the design of the courses. Undergraduate students with disabilities had fewer opportunities to interact with other students, and mostly appreciated those opportunities. Some students did not feel the need to interact with other students or did not see the value in that type of interaction, because interactions in forums were not timely for them and did not feel real. Graduate programs were generally cohort based, with student-to-student interactions being one of their key components. Graduate students with disabilities indicated that their interactions with other students made them feel understood, valued, and respected. Therefore, my study has generated descriptions of student-to-student interactions on a spectrum from no interactions to full support. Students did not describe the importance of this interaction for learning or satisfaction; however, they spoke about interactions with peers in terms of *being connected*.

Students with disabilities described their feeling of *being connected* on a spectrum from feeling isolated to feeling connected to fellow students and through them to the rest of the world. This constituent was of importance for students who were homebound and physically isolated because of their disability. Some students commented that they felt isolated because of the nature of distance education and the nature of their disability, as reported in the literature on online students without and with disabilities (Bambara et al., 2009; Dobransky & Hargittai, 2006). However, isolation was not an issue for all students, as some described isolation as their own choice, one that gives them freedom and flexibility. A similar finding was reported by Black (2014), who studied information-seeking experiences of postsecondary online students.

Becoming was the invariant constituent of the experience of graduate students with disabilities. While some undergraduate students mentioned transformations which they linked to studying online, graduate students with disabilities described them as a core constituent of their experience. Graduate students with disabilities experienced a range of transformations affecting different aspects of their personal, academic, and professional lives. Boyer and Maher (2005) in their study of online graduate students revealed transformations as a learning outcome of an online collaborative, interactive, and self-directed course with a one-day introductory face-to-face orientation. Students reported numerous instances of perspective transformations that corresponded with various stages of transformative learning theory (Mezirow 1978, 1991, 2000). The design of the graduate programs in my study was characterized by collaborative, interactive, and self-directed learning, and students reported transformations such as becoming healthier, happier, more engaged, and more positive about future personal and professional endeavours. The transformational potential of online learning for students with disabilities should thus be further explored.

The findings of this study expand our understanding of the experience of students with disabilities and provide evidence for a needed shift in focus of research and services from individuals to environment, from technology and access to interactions, from disability services to other stakeholders including instructors, instructional designers, administrators, and information technology specialists.

Differences in experiences between undergraduate and graduate students with disabilities were present in different constituents as intra-constituent variability. This means that invariable constituents of the structure were the same for both groups of students but the location on the continuum where their experiences fell was dependant on whether the program was individualized, or cohort based. Descriptions of two out of five constituents, namely *having access and working harder*, did not differ between undergraduate and graduate students. Both groups had a range of shared experiences. However, other constituents such as *being supported*, *being connected*, and *becoming*, were described by different groups slightly differently. For example, undergraduate students who were mostly in the individualized, independent study programs had fewer interactions with instructors or tutors, and other students. They described the experience of interaction with tutors as less supportive as they did not have many opportunities to interact with them. Similarly, the constituent *being connected* is a continuum on which experiences of undergraduate students who had fewer chances to interact with instructors and fellow students were described as a feeling of being less connected, while experiences of graduate students in collaborative, cohort based programs were described in more positive terms.

Students with disabilities who participated in this study were older than the average student population at their online university and had a range of disabilities. However, none of them were blind or deaf. The biggest number of participants had multiple disabilities and mental health related disabilities, followed by physical, learning and neurological disabilities, and health conditions. Learning disabilities were the most frequently reported in combination with other disabilities. Corporality of the experience is described as a facilitator *knowing yourself* in terms of knowing your own disability, disability related needs, and rights. Although the bodily experience of disability shaped the individual experiences of the online learning in terms of their ability to consistently participate, the type of impairment or diagnosis were not determining factors. This means that students with the same impairments or diagnosis had different needs and experiences of their disabilities, or students with different impairments had similar needs and experiences. For example, Paolo and Rosemary had the same diagnosis but different experiences of both their disabilities and online learning, while Flora and Walter had different disabilities and similar experiences of studying online. It is important to recognize the diversity of the population of students with disabilities and not treat them as a homogenous group, even when students have the same impairment or diagnosis.

So What: Situating Findings in the Policy Context

The description of experience of interactions for students with disabilities generated in this study is evidence that potentially could be used to inform policy-making in this area. The description of experiences as well as barriers and facilitators suggests that the broader Canadian policy environment related to postsecondary students with disabilities who study online is mirrored at the university level. The Canadian policy environment can be seen as a patchwork of legislation and policies at different jurisdictional levels, and when these policies are implemented at the university level, they are translated into a patchwork of procedures and interventions that are inconsistently applied. Although the main purpose of the legislation and policies is equity through elimination of discrimination and removal of barriers to improve access to postsecondary education, students with disabilities still face barriers. Clear enforcement mechanisms of policies, particularly as they relate to accommodations, are absent. The implementation and provision of ASD-recommended accommodation are left to the individual instructors; in cases of denial of accommodation, students with disabilities must claim their rights through the office of the university ombudsperson or in a court of law.

Students with disabilities face the policy paradoxes identified in the review of Canadian policies presented in Chapter 2. To have a similar right to education as anybody else, students with disabilities must claim their difference based on disability. If they want to be equal and the same, they must be different. Philosophically, the university uses the human rights model, but to claim those human rights, students with disabilities must be assessed and certified as disabled within the medical model. To be empowered, students with disabilities must be labelled as such, a process that some participants described as stigmatizing. Interestingly, participants with disabilities described the decision-making paradox not in relation to the medical professionals who had knowledge of disability and no knowledge of education but in relation to instructors who understood education but had limited knowledge of disability. Participants described it as one of the barriers to studying online that some instructors did not understand disability, accommodation, and their institutional and individual responsibilities and yet had the final decision-making power as to whether a student received the ASD-office recommended accommodation. Other barriers that participants identified were related to the complex and complicated process of accessing accommodation, inconsistency in providing accommodations, and over-reliance on text and text-based interactions. All three barriers could be tackled by creating an enabling, streamlined policy environment at the institutional level and ensuring clear enforcement, monitoring, and complaint mechanisms.

Students with disabilities identified facilitators that helped them to study online, including knowing oneself and one's own needs and rights, as well as flexibility in terms of time, people, processes, infrastructure, course design, and funding. These findings suggest that flexibility helps remove barriers, identified in previous research, including inaccessibility of the infrastructure, inappropriate teaching and assessment strategies, negative attitudes, disclosure concerns, and additional disability-related expenses (Fichten et al., 2009; Fuller et al., 2004; Nicholls, Li , Leslie et al., 2012; Standing Senate Committee on Social Affairs, Science and Technology, 2011). The barriers and facilitators identified in my study could be taken into consideration when developing university policies and procedures related to students with disabilities. Although the identified barriers and facilitators had a level of generality, their relevance was mostly for the institutions where the study was conducted with a cautious applicability to similar contexts due to limitations and delimitations of the study.

Then What: Findings and Theories

Although the purpose of my study was not to theorize but to describe the phenomenon, reflecting on the theoretical inspiration for this study is an opportunity to examine the potential of using different theories to explain the phenomenon. Theoretically, the study is underpinned by the human rights view of disability (UN, 2008; WHO, 2001), four types of interaction in online learning (Hillman et al., 1994; Moore, 1989), and four phenomenological existentials (Merleau-Ponty, 1962; Van Manen, 1997). When applied to online learning, the human rights view of disability defines disability as an interaction between individuals with impairments and their online learning environment with the barriers that prevents learners with disabilities from full and equal participation. The description of key structures of experience of interactions for students with disabilities details barriers and facilitators as well as characteristics of students' experience on a spectrum from disabling to enabling. Furthermore, if interactions are theoretically grouped into interactions with instructors, peers, content, and system, it becomes obvious from the findings of this study that students with disabilities face barriers in all four areas, but also their descriptions of experience offer examples of interactions without barriers. For example, the findings indicate that interactions with instructors are highly valued but sometimes difficult, mostly because of instructors' lack of understanding of disability and how it plays out in the learning environment with and without accommodations. Interactions with other students were described as supportive of learning. Interactions with content were dependent on its accessibility, while interactions with the system, particularly disability-support services, were described as essential. The findings of this study suggest that Moore's expanded framework could be used to theorize about online learning for students with disabilities, and to explore how to make these four interactions barrier free and inclusive for all students.

Philosophically, the findings of this study can be examined by using four essential structures of any experience: lived space, lived body, lived time, and lived human relations. I present here a few examples as an illustration of the potential to theorize about online learning for students with disabilities.

Two aspects of lived space emerged from this study: the online learning environment is experienced as a physical location where interactions happen, and learning choices are made; and accessibility of that space in terms of mainstream and assistive technologies, organization, ease of navigation, and format and design of materials and activities is seen as essential for online learning. Lived space is also ambiguous because some students felt that they are university students without a university.

In terms of lived body, students described various aspects of their disability and how it influences their ability to study online. Knowing own needs and strengths was described as a facilitator of online learning, as students worked around their bodily experience of disability, which manifested itself as pain, fatigue, anxiety, or lack of control.

In this study, descriptions of lived time were closely related to those of lived body, because students could study around the clock of their bodily experience of disability. Studying at times when they were able to study and when it was convenient to them gave them necessary flexibility. Flexibility of time was one of the key facilitators, suggesting that the inherent characteristic of online learning ability to *study anytime* particularly appeals to students with disabilities.

Lived relations are also a key constituent of the experience of interactions for students with disabilities. Their relations with instructors, students, and disability support services personnel were at the core of their experiences. Supportive relations and communication with others shaped their online academic experiences.

This brief discussion of theoretical underpinnings suggests the potential to theoretically ground future research. Theoretical explanations of online learning from the disability rights perspective and online learning perspective are required to further our understanding of the field.

Chapter 5 Summary

In this chapter I have discussed the findings of this study in relation to the existing research literature, policies, and theories. This chapter situates my research within a broader body of knowledge and policy context within which university students with disabilities experience online learning. I have also briefly discussed the theoretical inspirations for the study without attempting to theorize on disability and online learning, as that was not the purpose of this study.

In the final chapter of the thesis, I summarize the study, discuss its limitations, and, based on the findings and discussion, present implications and recommendations for research, theory, policy, and practice. The thesis ends with my final reflection.

CHAPTER 6 – CONCLUSIONS

In this last chapter of the dissertation, I present a summary of this study, discuss its limitations, and present implications for research, theory, policy, and practice. Based on the study findings, I give recommendations for students with disabilities, instructors, service providers, administrators, and policy-makers. I end with final reflections about the process and outcomes of my research.

Summary of the Study with Conclusions

This study aims to describe the structure of experience for students with disabilities in their interactions in online higher education. It addresses a gap in the emerging literature at the intersection of online learning and disability by bringing to the fore the description of lived experiences of students with disabilities in online learning environments, an element that is largely absent in the current literature (Denhart, 2008; Fuller, Healey, Bradley, & Hall, 2004; Heindel, 2014; Seale, 2010, 2014). Enabling human rights legislation, inclusive education, and new technologies in education have created unprecedented opportunities for students with disabilities to pursue higher education (Anderson, 2008, Barnard-Brak & Sulak, 2010; Seale, 2014). As the number of university students with disabilities continues to grow (CUSC, 2016; Ebersold, 2008; Harrison & Wolforth, 2012), research in this field is gaining in importance. Research on students with disabilities and higher education in general, and online higher education in particular, mostly focuses on technology and support services, while pedagogy and theories of learning and disability are somewhat neglected. The literature suggests that the more supportive the online learning environment, the greater the benefits for students with disabilities (Moisey, 2004). Although the body of the research is growing, it is diverse to compare, often too small to generalize, lacking in theoretical and conceptual underpinning, and reliant on mostly quantitative research, making it difficult to establish an evidence base.

This qualitative, descriptive phenomenological study was informed by Husserlian phenomenological philosophy (Husserl, 1983), the adapted Moore's theory of interaction (Hillman, Willis, and Gunawardena, 1994; Moore, 1989), and a human rights approach to disability (Stein 2007; United Nations, 2008). The study included nine undergraduate and six graduate students who self-identified as having a disability and who studied online at a single-mode Canadian university. Undergraduate students with disabilities were enrolled in self-paced programs that primarily relied on interactions with tutors and materials. Graduate students with disabilities were in cohort-based master's programs with fixed semesters and interactions with instructors, peers, and materials. Students had a range of physical, mental, and learning disabilities. All except two were registered with disability services.

This study has shown that the core structure of the experience of interactions for undergraduate and graduate students with disabilities in online programs has five constituents: *having access, working harder*, *being supported*, *being connected* and b*ecoming* which is primarily constituent of graduate students' experience. Students with disabilities described *having access* as it relates to technologies and accommodations including assistive technologies, materials in alternative formats, and financial support encompassing technological, pedagogical and administrative aspects of access. The interplay of technological, personal and environmental factors made students work harder in order to succeed in online learning environment.

Students described how *being supported* by instructors, service providers, and peers was essential for their learning. They described *having access* and *being supported* as a continuum from negative to positive experience, from experiencing none or a limited presence of the constituent to its full presence. In parallel to these two constituents, students described *being connected* as a feeling on a continuum from being isolated to being connected. The structure of experience of interactions for graduate students with disabilities and some undergraduate students with disabilities had the further constituent of *becoming,* which this group described as personal and professional growth and the transformational impact of online learning on their identity.

Having access, working harder, being supported, and *being connected* are constituents with high intra-constituent variability. Although each participant experienced these constituents differently, they were equally important for all participants. Therefore, they are described as a continuum on which all individual experiences are situated. That is, the same student in different courses, and different students with the same learning needs, had both positive and negative experiences of the same types of interactions. For example, Megan had experiences of interaction with instructors that ranged from not being supported at all to being well supported. Another example of intra-constituent variability is that of Sandra and Kirk, who both needed cue sheets as an exam accommodation. While Sandra repeatedly had to fight to have this accommodation, Pete received it without problems. The description of the constituents of the experience as a range rather than a singularity provides a new understanding of the lived experience of students with disabilities in online higher education that has not to my knowledge appeared previously in the literature. It reflects the diversity of students with disabilities and their experiences due to the multiple individual and environmental factors.

Students with disabilities described both barriers and facilitators they experienced while studying online. They experienced barriers when there was a mismatch between their needs and the university policies and processes they had to navigate to get their needs met. They described the following barriers: long, complicated processes of accessing accommodations; inconsistencies in providing accommodations; a lack of awareness of disability, accommodations, rights, and obligations among instructors; a lack of responsiveness of the system to students' inquiries; and over-reliance on a single mode or an activity in the design of courses. Students with disabilities described experiencing these barriers when interacting with instructors and with the system, including accommodations, the support system, and infrastructure. On the other hand, students with disabilities stated that *knowing themselves*, their strengths and weaknesses and their needs and rights, helped them to navigate and learn in the online environment. *Flexibility* was another facilitator that helped students with disabilities be successful online learners, enabling them to make the choices that worked the best for them. They described flexibility as a multidimensional concept relate to time, people, processes, infrastructure, course design, and funding.

The experiences of studying online for students with disabilities were mostly positive, except for two students who did not register with the office of disability services. However, almost all students described at least one negative experience of interactions. Recognizing personal and individual factors such as those described under *working harder* and *knowing yourself*, the findings of this study point out environmental, attitudinal, and policy factors that also shape experiences of students with disabilities in the online learning environment. These findings illuminate the institutional capacity and the potential of flexible online learning to provide a barrier-free learning environment for students with disabilities, as described in their positive experiences of interactions. At the same time, the findings reveal inconsistencies in ensuring equal access for students with disabilities to participate without barriers in courses across university programs. Students with disabilities saw it as a shared responsibility of instructors, disability support service providers, and administrators for accessibility and accommodation.

Delimitations

Selection of Giorgi's descriptive phenomenological method, as well as decisions about the participants, and the institution delimits this study. The findings of Giorgi's descriptive phenomenological method are descriptions of experience rather than its interpretation.

Participants in this study were undergraduate and graduate students from a single-mode Canadian distance education institution, who self-identified as having a disability, who completed at least two online courses, and who were enrolled in a course at the time of the interview ensuring.

Recruitment of participants from a single institution was another delimitation. The study included students with different types of disabilities to maintain the cross-disability perspective. However, it included only those who had experience of studying online to the exclusion of those who were in mobile and blended learning environments in order to have participants with maximum diversity in terms of disability experience and homogeneity in terms of learning environments. This approach ensured that although diverse, these experiences had sufficient number of common constituents to allow for the development of the structure of experiences.

Being part of a qualitative research tradition, this study does not attempt to generate generalizable findings. However, given the nature of the descriptive phenomenological method, which seeks common features of a phenomenon experienced by the study participants, the findings reflect a level of eidetic generality. In other words, invariant constituents of the structure of students' experience of interactions in online university programs could be considered general, while the frequency of their occurrence should be part of future quantitative empirical investigation.

Limitations

I have used various strategies to minimize the limitations of this study, but a number remain. An inherent limitation of the descriptive phenomenology that focuses on the description of an experience is that information on what preceded the experience and what the outcomes were is not included.

The main limitation of this study is the participant-recruitment process. Although I used a purposeful, criterion-based sampling to recruit participants, ultimately participants self-selected, as, for reasons of confidentiality and anonymity, they had to respond to an invitation to participate in the study. Participants had a wide range of disabilities; however, none had a visual impairment or was blind or deaf. Participants were of different ages but generally were older than the average student, and more mature. They were enrolled in various undergraduate and graduate programs, but none were doctoral students.

To ameliorate the limitation that I was the sole researcher, from the beginning of the study I engaged in regular peer debriefings with a colleague who was also conducting phenomenological research. I presented the data analysis to the Committee members.

Implications and Recommendations

Recognizing its delimitations and limitations, this study has implications for research, theory, policy, and practice. It has generated a description of experiences of interactions of students with disabilities in online learning environments and deepened our understanding of the phenomenon. It has identified key constituents of the experience as described by study participants. However, considering participants' demographic characteristics and the variety of pedagogical approaches used in the programs, further research on lived experiences of students with disabilities is needed. It would be important to study experiences of younger students who are of average age of the student population at the given institution, and students with specific disabilities who were not represented in this study, namely students who are deaf and blind. Another area of potential research is exploring the experiences of students with disabilities enrolled in different institutions using diverse pedagogical approaches and delivery methods. In addition, quantitative research is needed to determine the frequency and distribution of invariant constituents of the experience of interaction for students with disabilities.

Although the purpose of this study was not to theorize but to describe constituents of the experience of interactions for students with disabilities in online university programs, situating its findings within four types of interactions that occur in online learning environments opens a new space for the theoretical examination of the phenomenon. By identifying constituents as well as barriers and facilitators that pertain to all types of interactions, this study creates an opportunity for a theoretical examination of disability in online learning environments within a mainstream theory of distance education rather than within disability-specific theories and theoretical frameworks. Although limitations and delimitations of this study, preclude me from developing a theoretical model or framework, it does provide evidence to support the need for the future theoretical examination within the mainstream theory of distance and online education.

In describing their experiences, students with disabilities pointed out institutional policies, procedures, and processes that were complex, complicated, inconsistently implemented, and lacking in enforcement mechanisms. In a way, the findings of this study mirror the overall policy environment as it pertains to online learning, accessibility, and disability. Therefore, this study has implications for policy-makers, who have a responsibility to create an enabling university policy environment with streamlined services and consistently provided accessible support to ensure inclusive postsecondary education for students with disabilities. Policy implications are primarily relevant for administrators at the institution where the study was conducted, but could also be applicable to the institutions with similar pedagogical, administrative and management approach to online education. Implications for other institutions should be considered with caution because although the findings of this study have a level of generality they are not generalizable.

This study provides qualitative evidence that confirms the crucial role of instructors and providers of disability support services in the academic experiences of university students with disabilities. Although students' descriptions of both positive and negative experiences of interactions with materials, instructors, peers, and the system are not generalizable, they can be used as a guide for practitioners to reflect on own practice and how they could improve it by removing barriers to postsecondary education for students with disabilities.

Recognizing that findings of this descriptive study cannot be generalized across the populations and contexts, but that there is a level of generality in diverse experiences of undergraduate and graduate students with disabilities, the following recommendations are made:

- Students with disabilities should know themselves, their needs, and rights, and should register with the office of the institution providing accessibility services for students with disabilities.
- Instructors should use pedagogy and technology to design flexible, accessible, and inclusive online learning environments with built-in choices to interact with content and people, including multiple forms of assessment.
- Instructors should improve their understanding of disabilities, disability rights, policies, obligations, and responsibilities to accommodate students with disabilities.
- Service providers should streamline processes for getting accommodation, eliminate the need for students with disabilities to negotiate accommodations with individual instructors, and inform students with disabilities about all available services.

- Policy-makers and university administrators should develop policies, procedures, monitoring, and enforcement mechanisms to enable streamlining and to simplify processes related to accommodations.
- Policy-makers and university administrators should ensure that all faculty and staff understand disabilities and individual and institutional responsibilities to ensure accommodation and enjoyment of the right to education for students with disabilities.
- Instructors, administrators, and support service providers should work together to ensure accessibility and accommodation for all.

Final Reflection

In this final reflection, I look back on my doctoral studies as a whole and the dissertation research in particular. With more than 20 years of experience in the disability sector, I had many potential questions I wanted to ask in my dissertation research. The various courses I took and funding applications I submitted in the first three years of the program were opportunities to shape and narrow my study. The view that interaction is at the core of both disability and online learning allowed me to situate my study within a mainstream theory of online education. My belief in the disability movement motto “Nothing about us without us” helped me to focus on the experiences of students with disabilities as I looked for a way to document the phenomenon from their perspective. The choice of the descriptive phenomenological method was logical, as it aims to generate the description of a phenomenon based on the first-hand accounts of those who have experienced it. Recognizing that interactions in online learning environments involves instructors, support personnel and students, I selected to focus on students' perspectives as their perspectives were mostly absent from the existing literature. The candidacy exam was another opportunity for me to scrutinize my research proposal and the decisions I had made up to that point. The candidacy exam gave me the necessary reassurance to initiate the study. Obtaining the Research Ethics Board approval was another major step that made me examine all aspects of my study from an ethical point of view.

Every step of the study was a learning experience as I encountered dilemmas, considered various options, consulted literature, discussed with a peer, made decisions, and moved on. Every step of the study took me on a mini-discovery that slowed me down but allowed me to deepen my understanding of the issue, learn the ins and outs of the methodology, and reflect. Understanding and using phenomenological reduction is at the core of conducting descriptive phenomenological research. It has been a challenging experience, but it has helped me to develop a heightened awareness of who I am as a researcher, what I know, think, and believe, and how to put it aside, and how to be open to the data as it presented in front of me while maintaining disciplinary focus.

I truly understood the meaning of the word *immersed* when I immersed myself into the data, the naïve descriptions of participants' experiences. Data analysis took much longer than I anticipated. It involved months of in-depth analysis thorough transformation of meaning units and writing descriptions. After prolonged engagement with the data and questioning its parts, invariant constituents started to emerge, to form a whole of the experience of interactions for students with disabilities in online university programs. In presenting my findings, I departed from the Giorgi's method as I provided descriptions of individual experiences and included students' words in the description of invariant constituents. I made the decision to do so because I felt that I owed it to the participants to develop individual narratives with contextual details that shaped their experience. By quoting from their naïve descriptions, I gave them a voice in my study. Individual descriptions and participants' words allow readers to judge for themselves the way I have transformed the meaning units and developed the structure of the experience.

Reflecting on the significance of my study and its implications and developing a set of recommendations were other challenging moments in my research. They required stepping back and seeing the findings within a broader context and analyzing whether and how this study might have potential to improve online learning environments for students with disabilities.

At the end, I look back and can only say, "What a journey my doctoral studies have been!" The journey has taken me from inspiring interactions with professors who are leading theorists and researchers in the field of online education, and deep and meaningful discussions with my cohort members, to fear of the unknown as I started my research, to challenging moments of dissertation writing when everything was in my head but words were escaping me, and finally to the excitement of revelation when the findings of my study started coming together like magic. I enjoyed every moment of it. As I bring my dissertation work to a close, a new chapter will open. Until now my concern has been to produce a high-quality descriptive phenomenological study. Now it is to transform the findings of my research into a useful product to facilitate online education for students with disabilities and those who support them. Students with disabilities generously shared their experiences with me. Now it is my responsibility to share my research findings with various stakeholders to ensure that the experiences of students with disabilities are heard in scientific, educational, and policy circles.

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Ministry of Enterprise and Advanced Education. (2015). *Alberta campus planning resource.* Retrieved from http://eae.alberta.ca/capr

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APPENDIX A – Interview Guide

Demographic data

1. Are you currently enrolled in an online course? Which one?
2. Have you completed two more online courses?
3. Are you enrolled in a degree program?
4. How old are you?
5. What is your gender?
6. Describe your disability.
7. Have you registered with the Access to Students with Disabilities Office?

In-depth interview (60–90 minutes)

1. Tell me about yourself.
2. What is it like for you to study online with a disability? Describe your experience in the online course you are currently taking commenting on your interactions with instructors, students, and materials)
3. What technologies or devices do you use to study online? (desktop, laptop, tabled, phone, assistive technologies) Describe your experience in using these technologies.
4. Describe how your disability affects your experience of studying online. Give me an example of disability related learning challenges you face.
5. Have you registered with the Access to Students with Disabilities Office? If yes, what kind of services did you receive from them? If no, why not?
6. All in all, how does it feel for you to study online? Give me an example of a learning situation that you feel very good about. Is there are anything that frustrates you (Barriers)?

7. What makes your online learning experience better? Give me an example of actions or resources that made your learning experience better.
8. Based on your experiences, what recommendations would you offer to other students with disabilities, faculty, service providers, and administrators within this university?
9. Is there anything else you would like to share?

APPENDIX B – Athabasca University Research Ethics Approval

Athabasca University
RESEARCH CENTRE

July 18, 2016

Ms. Djenana Jalovcic
Centre for Distance Education\Doctor of Education
in Distance Education Athabasca University

File No: 22273
Expiry Date: July 17, 2017 Dear Djenana Jalovcic,

The Centre for Distance Education Departmental Ethics Review Committee, acting under authority of the Athabasca University Research Ethics Board to provide an expedited process of review for minimal risk student researcher projects, has reviewed you project, 'Experiences of Interaction for Students with Disabilities in Online University Programs'.

Your application has been **Approved** and this memorandum constitutes a ***Certification of Ethics Approval.*** Ethical approval is valid for a period of one year, and will expire on July 17, 2017. Collegial comments: In 6.2: "audio recorded" rather than "tape recorded". In 18.4: please also add that other future researchers will not have access to any raw data with identifiers - and that participants will be informed of this. In 21.3: add "and participants will be informed of this". ***Your application has been returned through the research portal to allow you to make these minor changes. Please resubmit your application once this is done.***

It is noted that you require AU Institutional Permission to access university systems, staff or students to conduct your research project, therefore a request for institutional permission *will be initiated* on your behalf by the Research Ethics Office once your application is resubmitted.

*****Participant recruitment and/or data collection *may not proceed* until this institutional permission has been granted. Information on this process will be forthcoming.*****

AUREB approval, dated July 18, 2016, is valid for one year less a day.

As you progress with the research, all requests for changes or modifications, ethics approval renewals and serious adverse event reports must be reported to the Athabasca University Research Ethics Board via the Research Portal.

To continue your proposed research beyond July 17, 2017, you must apply for renewal by completing and submitting an Ethics Renewal Request form. Failure to apply for **annual renewal** before the expiry date of the current certification of ethics approval may result in the discontinuation of the ethics approval and formal closure of the REB ethics file.

Reactivation of the project will normally require a new Application for Ethical Approval and internal and external funding administrators in the Office of Research

Services will be advised that ethical approval has expired and the REB file closed.

When your research is concluded, you must submit a Project Completion (Final) Report to close out REB approval monitoring efforts. Failure to submit the required final report may mean that a future application for ethical approval will not be reviewed by the Research Ethics Board until such time as the outstanding reporting has been submitted.

At any time, you can login to the Research Portal to monitor the workflow status of your application.

If you encounter any issues when working in the Research Portal, please contact the system administrator at research_portal@athabascau.ca.

If you have any questions about the REB review & approval process, please contact the AUREB Office at (780) 675- 6718 or rebsec@athabascau.ca.

Sincerely,

Debra Hoven
Chair, Centre for Distance Education Departmental Ethics Review Committee
Athabasca University Research Ethics Board

APPENDIX C – Letter of Information/Informed Consent Form

LETTER OF INFORMATION/INFORMED CONSENT FORM

Experiences of Interaction for Students with Disabilities in Online University Programs

Date

Principal Investigator (Researcher):	Supervisor:
Djenana Jalovcic	Dr. Susan Moisey
elearning.disability@gmail.com	susanh@athabascau.ca
1 613 583 0099	1 866 403 7426

You are invited to take part in a research project entitled “Experiences of Interaction for Students with Disabilities in Online University Programs”.

This letter is part of the process of informed consent. The information presented here should give you the basic idea of what this research is about and what your participation will involve, if you choose to participate. It also describes your right to withdraw from the project. In order to decide whether you wish to participate in this research project, you should understand enough about its risks and benefits and what it requires of you to be able to make an informed decision. This is the informed consent process. Take time to read this letter carefully as it is important that you understand the information given to you. Please contact the principal investigator, Djenana Jalovcic, if you have any questions about the project or would like more information before you consent to participate.

It is entirely up to you whether or not you take part in this research. If you choose not to take part, or if you decide to withdraw from the research once it has started, there will be no negative consequences for you now or in the future.

Introduction

My name is Djenana Jalovcic and I am a doctoral student in distance education at Athabasca University. As a requirement to complete my degree, I am conducting a research project about experiences of studying online for undergraduate and graduate students with disabilities. I am conducting this project under the supervision of Dr. Susan Moisey.

Why are you being asked to take part in this research project?

You are being invited to participate in this project because you are a student who self-identify as having a disability or as a student registered with the Access to Students with

Disabilities Office, you are currently enrolled in at least one online course, and you have completed at least two online courses so far. Your experience of studying online with a disability and knowledge of issues, barriers, and facilitators that shape your online academic experience is the topic of this study.

What is the purpose of this research project?

The purpose of this research is to improve our understanding of experiences of interactions in online courses for undergraduate and graduate students with disabilities. The project aims to capture what it is like for students with disabilities to study online, describe those experiences from the participants' perspectives, and share the results with students with disabilities, academics, researchers, and policy-makers. The project aims to give a voice to students with disabilities with a potential of shaping policies, online programs, and support services based on students' input.

What will you be asked to do?

As a participant in this study you will be asked to take part in one 60 – 90 minute phone or Skype interviews. In the first part of the interview, the purpose of the study and the nature of involvement will be further discussed, your questions about research will be answered, and demographic data will be collected. Then you will be asked to describe what it is like for you to study online with a disability, what you do, how you feel, how you interact, and what you see as barriers and facilitators that shape your online academic experiences. The interview will be tape-recorded and transcribed, either by the researcher or a research assistant. If there are any barriers to participation in phone or Skype interviews, the researcher will provide an alternative format to ensure your barrier-free participation. Interviews will be arranged at a time and using technology that is convenient to you. The transcription of your interview will be emailed to you for review and written clarification of comments if necessary. You will also be asked to share a painting, poem, journal or any other artefact that you are willing to share and consider to be an important secondary source of information about your experience for this research. Sharing artefacts is completely voluntary.

What are the risks and benefits?

By participating in this study you may be exposed to a potential risk of experiencing emotional stress if you talk about an experience of studying online that was particularly difficult for you. One of the aims of the project is to give participants a chance to speak about experiences, including difficult issues. You can immediately discuss your reactions with Djenana, and she will assist you in finding resources or supports to help you. However, you do not have to share anything that you do not want to. You are not obligated to answer any questions that you find objectionable or which may make you feel uncomfortable. The benefits to you are that you will have a chance to share your experiences with the researcher who will describe them and report in publications and presentations. In this way, an opportunity will be created for your voice to be heard, which will contribute to a better understanding of how to best support other students with disabilities in online higher education.

Do you have to take part in this project?

As stated earlier in this letter, involvement in this project is entirely voluntary. You may withdraw from the study at any time, without fear of negative consequences to you. Your role as a student and your future involvement with Athabasca University will not be affected in any way by your decision to participate in or to withdraw from this study. If you decide to withdraw from the project after completing the interview, the transcription of your interview will be deleted if you withdraw within one month after completing interview.

How will your privacy and confidentiality be protected?

Your confidentiality will be protected at all times, including safeguarding your identity, personal information, and data from unauthorized access, use or disclosure. Interview transcripts, interview notes, and voluntarily shared artefacts will be stripped of any personal information. Pseudonyms will be used. Identifying information and the document linking personal information to the data will be encrypted and kept separately in password-protected folders, on a password-protected laptop. Only the researcher and her supervisor will have access to identifying information. All information will be held confidential, except when legislation or a professional code of conduct requires that it be reported.

How will my anonymity be protected?

Your anonymity will be guaranteed. Pseudonyms will be used to protect your anonymity. Any responses taken from interviews to be quoted verbatim in subsequent publications or presentations will be anonymous in nature. Every reasonable effort will be made to ensure your anonymity.

How will the data collected be stored?

A digital recorder capable of capturing telephone and Skype conversations will be used for the interviews. Interviews will be transcribed and stripped of any identifiers. Pseudonyms will be used. All identifying information will be destroyed after a period of five years, as per the university’s data destruction policies. According to the SSHRC policy, unidentifiable audio files and transcriptions will be held by the researcher and made available for use by others within two years of the completion of the research project for which the data was collected. All electronic data will be password-protected and encrypted and kept on the password-protected computer. If any hard copy of data is made, the researcher will keep it in a locked filling cabinet.

Who will receive the results of the research project?

The existence of the research will be listed in an abstract posted online at the Athabasca University Library's Digital Thesis and Project Room, and the final research paper will be publicly available. No personally identifying information will be included in reports, publications, and presentations. Findings from this study will be presented at academic conferences and in relevant publications and will be made available to project participants, and stakeholders. To facilitate open access, results stripped of any personally identifying information will also be disseminated through social media and websites relevant for students with disabilities in online higher education. Participants in the study will be able to access the executive summary and the link to the website with the complete study on the Word Press blog dedicated to this research at https://wordpress.com/posts/atdistance.wordpress.com.

Who can you contact for more information or to indicate your interest in participating in the research project?

Thank you for considering this invitation. If you have any questions or would like more information, please contact me by email at elearning.disability@gmail.com or by phone at 1 613 583 0099, or my supervisor, Dr. Susan Moisey, at susanh@athabasca.ca or by phone at 1 866 403 7426. If you are ready to participate in this project, please complete and sign the attached Consent Form and return it by email to elearning.disability@gmail.com.

Sincerely,

Djenana Jalovcic

Doctoral student

Centre for Distance Education

This project has been reviewed by the Athabasca University Research Ethics Board. Should you have any comments or concerns regarding your treatment as a participant in this project, please contact the Research Ethics Office by email at rebsec@athabascau.ca **or by telephone at 1-800-788-9041, ext. 6718.**

Informed Consent

Your signature on this form means that:

- You have read the information about the research project.
- You have been able to ask questions about this project.
- You are satisfied with the answers to any questions you may have had.
- You understand what the research project is about and what you will be asked to do.
- You understand that you are free to withdraw your participation in this research without having to give a reason, and that doing so will not affect you now, or in the future.
- You understand that if you choose to end your participation during data collection, any data collected from you up to that point will be destroyed.
- You understand that if you choose to withdraw within one month after data collection has ended, your data can be removed from the project at your request.

	YES	**NO**
I agree to be audio-recorded.		
I agree to the use of direct quotations.		
I allow data collected from me to be archived for two years digitally in password-protected, encrypted files stored on password-protected computer.		
I am willing to be contacted in writing following the interview to verify that my comments are accurately reflected in the transcript.		
I agree to share relevant artefacts.		

Your signature confirms:

- You have read what this research project is about and understood the risks and benefits. You have had time to think about participating in the project and had the opportunity to ask questions and have those questions answered to your satisfaction.
- You understand that participating in the project is entirely voluntary and that you may end your participation at any time without any penalty or negative consequences.
- You have been given a copy of this Informed Consent form for your records.
- You agree to participate in this research project.

______________________________ ____________________________

Signature of Participant Date

Principal Investigator's Signature:

I have explained this project to the best of my ability. I invited questions and responded to any that were asked. I believe that the participant fully understands what is involved in participating in the research project and any potential risks and that he or she has freely chosen to participate.

______________________________ ______________________________

Signature of Principal Investigator Date

APPENDIX D – Confidentiality Agreement

I, ________________________________ transcriptionist, agree to maintain full confidentiality in regards to any and all audio files and documentation received from Djenana Jalovcic related to her research study titled “Experiences of Interaction for Students with Disabilities in Online University Programs”. Furthermore, I agree:

1. To hold in strictest confidence, the identification of any individual that may be inadvertently revealed during the transcription of audio-recorded interviews, or in any associated documents.

2. To not make copies of any electronic audio files or text files of the transcribed interviews texts, unless specifically requested to do so by the researcher, Djenana Jalovcic.

3. To store all study-related audio files and materials in a password protected electronic folder as long as they are in my possession.

4. To return all electronic audio and text files, and study-related materials to Djenana Jalovcic in a complete and timely manner.

5. To delete all electronic files containing study-related documents from my computer hard drive and any back-up devices.

6. I am aware that I can be held legally responsible for any breach of this confidentiality agreement, and for any harm incurred by individuals if I disclose identifiable information contained in the audiotapes and/or files to which I will have access.

Transcriber

______________________________	______________________________	______________________
(Print Name)	(Signature)	(Date)

Researcher

Djenana Jalovcic

______________________________	______________________________	______________________
(Print Name)	(Signature)	(Date)

This project has been reviewed by the Athabasca University Research Ethics Board. Should you have any comments or concerns regarding your treatment as a participant in this project, please contact the Research Ethics Office by email at rebsec@athabascau.ca or by telephone at 1-800-788-9041, ext. 6718.

APPENDIX E – Transformation of Meaning Units

And with that and with the availability of a good internet connection, I decided I was capable of restarting my academic work which previously I thought had ended. I thought I couldn't do any more because of the situation, the physical situation.	Originally he thought that his academic career had ended because of his physical condition. With improvements in his condition and a good internet connection he decided he was able to restart his academic work.	He thought that his academic career had ended because of his disability. However, with improvements in his condition and a good internet connection he was able to restart his academic work.	Improvements in his physical condition and good access to the internet enabled him to restart his studies in an online university program that he thought he could not do any more.
I was delighted to find that everybody at the [University] was very supportive. Despite the time I got two failed courses, ones I hadn't completed, they were prepared to let me back into the program, after taking far longer than normal, and restart my studies.	He was delighted to find everybody at the University very supportive allowing him to restart his studies despite the fact that he did not complete two courses and failed them.	He was delighted to find everybody at this online university supportive of him restarting the program despite the fact that he failed some courses.	Flexibility during the readmission process in considering his previous academic record made him feel well supported by the online university.
So that's been very positive for me in the last while. There were some challenges in me getting back into studies, but they were manageable, and I had excellent encouragement and support.	Returning to school has been very positive for him despite some challenges that he overcome with excellent encouragement and support.	Returning to school has been very positive for him despite some challenges that he overcame with excellent encouragement and support.	Returning to online studies had positive impact on him and he manages to overcome challenges with excellent encouragement and support.

APPENDIX F – Audit Trail

Category for reporting (Lincoln and Guba, 1985)	Audit trail	Decision points when literature was consulted
Raw data	• Interview audio files • Verbatim transcripts • Denaturalized transcripts • Artefacts • Notes	• How to protect anonymity and confidentiality of participants in studies using technology? • How to assign pseudonyms? • How to denaturalize transcripts? • How to know that saturation is reached?
Data reduction and analysis products	• Meaning unit transformations for each participant, notes	• How to ensure phenomenological reduction - return to the methodological and philosophical literature?
Data reconstruction and synthesis products	• Descriptions of the structure - different stages of description development, notes	• How to present findings – return to methodological and philosophical literature? • How to include participants' voices? • What are the connections with existing literature?
Process notes	• Description of methodology in the proposal, REB proposal, dissertation, notes, tables, mind maps	• How to use quotes in descriptive phenomenology? • How to present the summary of audit trail?
Materials relating to intentions and dispositions	• Proposal, notes, study web-site	
Instrument development information	• Interview guide	• How to develop semi-structured interview guide? • How to conduct a phenomenological interview?