ATHABASCA UNIVERSITY

EXPERIENCE WITH SUPPORT SERVICES OF GRADUATE STUDENTS WITH DISABILITIES STUDYING AT A DISTANCE: A CASE STUDY

BY

VERONICA BROWN

A thesis submitted to the

Athabasca University Governing Council in partial fulfillment

of the requirements for the degree of

MASTER OF DISTANCE EDUCATION

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ATHABASCA UNIVERSITY

The undersigned certify that they have read and recommend to the Athabasca University Governing Council for acceptance a thesis USE OF SUPPORT SERVICES BY GRADUATE STUDENTS WITH DISABILIITIES STUDYING AT A DISTANCE: A CASE STUDY submitted by VERONICA BROWN in partial fulfillment of the requirements for the degree of MASTER OF DISTANCE EDUCATION.

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DEDICATION

This thesis is dedicated to my husband, Scott, for his support and encouragement, and to my children, Lauren and Kate, whose smiles were invaluable in motivating me to complete this research. To my parents, Paul and Nancy Stephenson, both devoted educators, for the inspiration to pursue a career in education. To the students with disabilities who participated in this study and those with whom I have had the privilege to work. Their motivation and persistence inspire me to find better ways to support them.

ABSTRACT

This study examines the characteristics of graduate students with disabilities studying at a distance and their experience with formal disability-specific support services. Fourteen respondents completed an online survey exploring demographic characteristics, the use of support systems at the institution, their previous experience with support systems, and disclosure of the disability to the institution. Six of the respondents participated in an e-mail interview, where they described similar themes in greater depth as well as the impact of the disability on their studies, and the challenges and benefits of studying at a distance. None of the subjects used formal disability-specific support services. Reasons for non-participation included a lack of awareness about the services, the preference not to disclose the disability, and the availability of support from other sources. The most prevalent reason was that services were deemed unnecessary. Through effective study strategies and the development of their own coping mechanisms, these students appeared to be able to support themselves with nominal assistance from the institution. To strengthen support for these students, institutions can ensure more information about support services reaches students, faculty and staff have a strong understanding of disability-specific support at the institution, and avenues for interaction among students and with instructors are increased.

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CHAPTER I
INTRODUCTION

> "I don't really think of myself as having a disability. I have a condition, but it doesn't define me."
>
> (Interview participant)

Distance education can provide many students with disabilities with the flexible, accessible learning environment they need to achieve success at the post-secondary level. It can be adapted to "focus the learning process on the student, regardless of the student's unique needs and abilities" (Cavanaugh & Cavanaugh, 2004, Conclusion section, para. 1). Through distance learning, educators can offer adults with disabilities "what may be their last, best hope of access to education" (Paist, 1995, p. 61). The adequate provision of specialized support services for learners with disabilities, which can positively impact persistence and help students overcome the barriers they face (Moisey, 2004; Horn & Berktold, 1999), is a critical component of a distance delivery system. Although recent research has identified a positive relationship between participation in support services and success in post-secondary distance courses (Moisey, 2004), this research has focused on the undergraduate student population. The use of support services by graduate students with disabilities and their success in distance education remains an unexplored area.

Canadians with Disabilities

Statistics Canada defines persons with disabilities as "…those who reported difficulties with daily living activities, or who indicated that a physical [or] mental condition or health problem reduced the kind or amount of activities they could do" (Cossette & Duclos, 2001, p. 24). Based on this definition, one in seven or nearly 3.4 million Canadians (excluding residents of Yukon, Northwest Territories and Nunavut) aged 15 and over live with a

disability (Cossette & Duclos, 2001, Table 2, p. 7) and as Canada's population ages, this number will grow. According to the *Ontarians with Disabilities Act* (2001), the condition or health problem can be permanent or temporary; can cause a physical or mobility limitation or sensory impairment (e.g., vision or hearing); may be related to a learning, neurological or psychological condition; or may be a chronic medical or health condition (Definitions section).

Impact of the Disability

The impact of the disability on the adult's activities depends on its type and severity. The disability can affect personal development, independent living, education and employment (Bevan, 2003; Mellard & Lancaster, 2003). Currently, adults with disabilities in Canada do not attain the same level of education as adults without disabilities nor do they realize similar labour force participation (Table 1). These inequities are related as there is a significant relationship "between disability, level of employment, and employment outcomes" (Dowrick, Anderson, Heyer & Acosta, 2005, p. 41).

Table 1
Education and Employment Outcomes for Canadians With and Without Disabilities

	With Disability (n = 1,968,490)[a]	Without Disability (n = 17,889,850)
Education Level		
Did not complete high school	37%	25%
Completed college or university	27%	37%
Employment		
Employed	42%	74%
Unemployed	5%	6%
Not in the labour force	49%	21%

Source: Statistics Canada (2001)
[a] Numbers represent Canadians aged 15 – 64 years

While the rate of attaining post-secondary credentials is lower for adults with disabilities, there has been a significant increase in the number of persons with disabilities participating in post-secondary education over the past 30 years, growing from 2.6% to 8.8% of full-time freshmen at American colleges between 1978 and 1991 (Henderson, 1992, p. 30). Although enrolment remained at approximately 6-8% between 1988 and 2000 (Henderson, 2001, p. 27), there has been a shift in the composition based on the type of disability. The number of full-time college freshmen reporting hearing, speech, orthopedic, health-related, vision or other disability decreased between 1988 and 2000, however, the number of students reporting learning disabilities more than doubled, from 19.6% to 40.4% of all students with disabilities (p. 7). The division among disability types varies slightly for students studying at a distance. At Athabasca University, which delivers courses exclusively at a distance, Moisey (2004) found that approximately 1.5% of the undergraduate students had a disability. Of these, 52.3% had a physical disability (including chronic illness), 20.5% had a learning disability, 19.7% had a psychological disability, 4.1% had a visual impairment and 3.0% had a hearing impairment.

A disability can have both a direct and an indirect impact on a student's education. The direct impact is the result of the specific physical or mental condition or health problem. Examples include difficulties attending class due to a mobility limitation, the need for assistance with audio components for a hearing impaired student, or poor reading skills resulting from a learning disability. For some learners, however, the indirect impact of the disability is more influential on their academic success. Research has shown that for many learners with learning disabilities, years of low levels of academic success have lead to self-defeating beliefs, learned helplessness, low motivation, feelings of inadequacy, low-level

depression and low self-esteem (Dipeolu, Reardon, Sampson, & Burkhead, 2002; Fulton & Sabornie, 1994; Reekie, 1995). These indirect effects can influence students' self-advocacy skills, self-determination and internal motivation — attributes needed for success at the post-secondary level (Dowrick et al., 2005; Lynch & Gussel, 1996; Stodden & Conway, 2003). The result is higher attrition rates and lower participation rates in post-secondary education than their non-disabled counterparts (Dowrick et al., 2005; Horn & Berkthold, 1999).

Distance Learners with Disabilities

For many students with disabilities, distance education can provide a valuable alternative through which they can gain access to higher education. In discussing disabilities and other learner characteristics of distance education students, Moore (2004) suggested

> one of the great advantages of distance education is…that it provides (or let me emphasize, it *ought* to provide) a range of different combinations of resources and experiences (far beyond what is possible in a classroom), to meet the different needs of a variety of learners and learning styles). (p. 2)

This viewpoint is reiterated by Bailey, Kirkup and Taylor (1996), who concluded that "the rationale for developments in open and distance learning has often centred on their potential for overcoming educational disadvantage and for providing opportunities for groups hitherto excluded" (p. 129). While there are legitimate concerns related to the accessibility of distance education, particularly online delivery (Kinash, 2003; Wall & Sarver, 2003; Coombs, 1998), distance and online learning has great potential to help students with disabilities minimize the impact of their disability on their participation in higher education.

One challenge facing distance educators, however, is the lack of information about distance learners with disabilities. Little research has been reported about this particular

student population. In a review of the literature, Kinash, Crichton and Kim-Rupnow (2004) found only 43 publications at the intersection of online learning and disability, only five of which presented research. Three years later, Kinash and Crichton (2007) reported an addition of only 24 papers to their original list. Encouragingly, half of these new papers were considered to be research-related. Similarly, Kim-Rupnow, Dowrick and Burke (2001) conducted an extensive literature review yet found only 10 papers that related to exemplary students with disabilities and distance education systems for these learners. Of these reports, only two reported *why* students with disabilities chose to study at a distance.

One of the papers in Kinash and Crichton's (2007) list is about research conducted at Athabasca University in Alberta, Canada. Moisey (2004) provides information about the characteristics of distance learners with disabilities, as well as their enrolment patterns and use of support services. An important finding in her study was that there were significant differences in course completion rates among disability type. The completion rate for students with psychological disabilities was 40.4% whereas these rates were higher among students with hearing impairment (66.7%) and vision impairment (50.8%). There were also differences in the use and effectiveness of support services among disability types. Both students with a visual impairment and those with a hearing impairment received 3.0 services per student. Students with psychological disabilities, however, received only 1.8 services per student. Moisey found that "certain types of disabilities appear to be more amendable to assistance" (p. 89). For example, of students with learning disabilities who received assistive technology services, 92% completed one or more courses. Among other groups receiving the same services, course completion rates were somewhat lower. Of the 35 students with

physical disabilities who received assistive technology services, for example, only 14 completed one or more courses.

Supporting Students at a Distance

For many people with disabilities, successful participation at the post-secondary level means overcoming barriers associated with their disability. This is especially true for distance education, where contact and communication is limited. Services to address the complex support needs of learners with disabilities are necessary if the full benefits of studying through distance education are to be realized (Morningstar, Kleinhammer-Tramill, & Lattin, 1999). Support services are an important part of the distance education model. Historically, support services were introduced to reduce high attrition rates, which "can be attenuated … by the provision of adequate student support services" (Keegan, 1996, p. 151). Another reason for support services is to address student isolation (Simpson, 2000). While distance learners can be "characterized as independent, autonomous learners" (Thompson, 1989, p. 46), independence and autonomy does not preclude the potential that the learner will feel isolated. This may be particularly true for learners who have chosen to study at a distance because of geographical factors, not on the preference to study independently.

Support services for distance learners can include academic and non-academic support. Academic support includes formal and informal assessment, progress chasing, skills development, exploring the course and enriching experience (Simpson, 2000). Non-academic support might include career counseling, library services, and services for special populations such as mature students or international students (Rumble, 2000; Smith, 2001). Moisey and Hughes (in press) present a comprehensive list of support available to distance learners, and emphasize an important category of support – preparation for prospective students. While the

emphasis on academic versus non-academic services varies among authors, the common theme is that students, regardless of level of ability or disability, benefit from support related directly to their studies and support for their life as a student at the post-secondary institution.

Supporting Students with Disabilities

Extending beyond the support systems available to all learners, post-secondary institutions offer specialized services to assist students with disabilities. These support services and accommodations are provided to ensure the educational environment "does not have a discriminatory effect on a student because of the student's disabilities" (Alberta Human Rights and Citizenship Committee, 2006, p. 5). Generally the services consist of advocacy, academic accommodations, personal support, and information services (Stodden & Conway, 2003). Unlike the services provided to all students, the specialized accommodations available to students with disabilities must, under Canadian law, be made available. The Supreme Court of Canada has ruled that all post-secondary institutions must

> provide accommodation up to the point of undue hardship. The undue hardship standard is a very high standard, and as a result, in most situations, post-secondary institutions will be required to provide some accommodation. In these situations, post-secondary institutions are required to provide accommodation that overcomes the discriminatory effect but are not required to choose the most expensive of comprehensive level of accommodation. (Alberta Human Rights and Citizenship Committee, 2006, p. 6)

Support services can equalize educational opportunities as "post-secondary students with disabilities who receive adequate services persist in their studies and graduate at similar rates to their nondisabled peers" (Fichten et al., 2003, p. 74).

While the institution provides accommodations, it is the student's responsibility to seek and attain support and accommodations. Students must "inform school officials of their disability, provide documentation of the disability, and propose viable options for meeting the unique accommodation needs specific to their disability" (Stodden, Whelley, Chang & Harding, 2001, p. 189). Thus, students are responsible for seeking and attaining support and accommodations. As such, students with disabilities must have an understanding of the impact of the disability on their studies, and their support needs in order to propose these viable options.

This responsibility is an important difference between support systems at the secondary and post-secondary levels. At the elementary and secondary levels, the onus is on the institution to locate, identify, and serve students with disabilities (Eckes & Ochoa, 2005). At the post-secondary level, institutions do not have to identify students with disabilities, only to assist those who self-identify and request accommodations (Beale, 2005; Madaus, 2005).

At Athabasca University, support services are coordinated by the Access to Students with Disabilities (ASD) office. This office provides several important services to its students. It offers academic and learning support as well as educational advising and counseling. It helps students create individualized education, assistive technology, and support service plans. It coordinates accommodations, acts as a liaison with other departments and external agencies, and is an advocate for students. It provides referrals for students and can help them with assessments, both for current students requiring a re-assessment of current academic and learning supports and accommodations, and for students that might require identification. Finally, it provides information services and can assist students with funding guidance, application preparation and referrals (Athabasca University, 2007).

Problem

Support systems for persons with disabilities can effectively assist distance learners to overcome barriers associated with the disability. As previously discussed, Moisey (2004) showed that for undergraduate students studying at a distance, there is a positive relationship between the number of support services received and success in terms of course completion. The potential benefits of support services and academic accommodations motivate this research to establish if similar usage patterns exist for the graduate student population.

To narrow the scope of this research, the focus was placed on students with disabilities studying at a distance. Studies at the intersection of disability and distance education tend to focus on the functional aspect of instructing persons with disabilities at a distance. The literature is focused on the integration of assistive technology (Mull & Sitlington, 2003; Klemes, Epstein, Zuker, Grinberg, & Ilovitch, 2006), legal requirements for support (Edmunds, 2004; Dahl, 2004), and practices related to universal design of courses (Burgstahler, Corrigan & McCarter, 2004; Bricout, 2001). While these three areas can lead to practical recommendations for instructors of students with disabilities, they do not address other support needs. Socialization, adapting to the transition from high school to post-secondary school, and learning strategies have been identified as key attributes of successful participation in post-secondary studies for students with disabilities (Stodden & Conway, 2003; Heiman & Precel, 2003; Lerner, 2000). A greater understanding of the support systems needed and used by students with disabilities, both formal systems provided by institutions and informal sources, is needed to strengthen the impact that support systems can have on helping students overcome the barriers related to their disability.

Purpose

The purpose of this research was to explore the experience with support services and accommodations of graduate students with disabilities studying at a distance. Two main objectives guided the development of this project. The primary objective was to learn more about graduate students with disabilities. Were there certain prevalent attributes or characteristics among these graduate students? How did the disability impact the student's studies? Did graduate students participate in disability-specific support services at the same rate as undergraduate students? Were they aware of available services and accommodations? Did they disclose their disability to the institution? If not, were there common reasons why graduate students chose not to disclose their disability and not receive services as a result? The second objective was to determine what kind of support students received previously and its impact on their success. Was the support effective? Were there any negative effects? Were there specific types of support that had a significant positive impact on their studies? What were the sources of previous support received? To explore these questions, this study focused on support for students studying at a distance, where "students with disabilities may be overlooked" (Edmonds, 2004, p. 51), particularly graduate students, an area of research that has so far been unexplored.

Research Questions

The primary objective of this research was to provide a greater understanding of graduate students with disabilities studying at a distance and the support services they receive and require. Specifically, the goal was to explore the use (and non-use) of support services and accommodations provided to students of Athabasca University. Participants were program or non-program students or graduates with disabilities affiliated with the Centre for

Distance Education (CDE) at Athabasca University. At the time of the study, the CDE offered two programs, the Master of Distance Education program and the Graduate Diploma in Distance Education (Technology) program. To determine student characteristics and to investigate graduate students' use of disability-specific support services, the following questions were examined.

1. What are the characteristics of graduate students with disabilities in the CDE?
2. Have they formally disclosed their disability to Athabasca University? If not, what are their reasons for non-disclosure?
3. What previous experience, if any, have they had receiving support and accommodations in formal education settings?
4. What kinds of services or accommodations do they require to be successful in their studies?
5. Are they currently receiving disability-specific services or accommodations? If so, what kinds of services or accommodations are they receiving? If not, what are their reasons for not accessing services?

Significance of the Study

A study of the use of disability-specific support services by students with disabilities is important for several reasons. First, it adds to the literature at the intersection of distance education and disability, which is valuable because distance education has the potential to "create a more level playing field" (Coombs & Banks, 2000, para. 1) for students with disabilities. Second, knowledge related to the characteristics of students with disabilities and their choice to participate or not to partake of support services can help support staff better adapt programs and services to the needs of these students. Finally, it can benefit students

with disabilities by sharing the experiences of other students, which might encourage students to use available services.

Limitations

The following limitations should be considered when reviewing this research.

- Because results were drawn from completed questionnaires and participation in semi-structured interviews with volunteer (i.e., self-selected) subjects, the sample was not random and therefore not representative of the population of learners with disabilities at Athabasca University or elsewhere.
- The subjects of this study were graduate students studying at a distance, so findings cannot be assumed to apply to other post-secondary populations (e.g., undergraduate students) or settings (e.g., on-campus delivery).
- The subjects in the study did not represent a full spectrum of disability. Some types of disabilities (e.g. psychological disabilities) were not represented in the sample.
- The number of subjects with a specific type of disability is very small thus the perspectives and experiences of subjects with a specific disability cannot be generalized to all persons with that disabling condition.
- The subjects were graduate students studying distance education. As students studying education, they might have a different understanding of educational supports for students with disabilities than other graduate students.

Delimitations

The following delimitations were used to develop this research.

- Unlike most Canadian post-secondary institutions that offer both on-campus and distance delivery modes, the institution offers courses exclusively at a distance.
- Current students and graduates of two graduate-level programs, rather than the entire population of the institution, formed the sample. Graduate students were chosen as the objects of study because they have demonstrated previous success in post-secondary studies, which suggests they have been able to overcome barriers associated with their disability.

Assumptions

The following assumptions were made in conducting this research.

- Data collection was completed through the Internet, using an online survey and e-mail. Because the CDE programs are delivered online, it was assumed that the subjects had access to the Internet and any necessary assistive technology.
- For the purpose of reviewing the literature, it was assumed that research related to post-secondary students with disabilities was relevant regardless of whether the study involved on-campus or distance learners, involved in either undergraduate or graduate-level studies.

- Because the online survey assumed anonymity, it was assumed that students who had previously not disclosed their disability to the institution would nevertheless participate in this research.

Definitions

For the purposes of this study, several key terms are defined below.

Academic Accommodation

The function of an academic accommodation is to compensate for a potentially discriminatory effect of the educational environment on the student with the disability. Examples of academic accommodations include increased time to complete a course, alternative examination mode, alternative format materials and additional time to write examinations.

Assistive Technology

Assistive technology is "any item, piece of equipment, or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities" (Assistive Technology Act of 1998, Section 3). A component of assistive technology is **adaptive technology**, which is a modification made to technology to make it feasible for a person with a disability to use the technology. Examples include computer software, such as a speech synthesizer (to read on-screen text), speech recognition system (converts speech to text), and computer hardware modifications, such as an adapted joystick, chorded-keyboard, or a refreshable Braille display.

Disability

The World Health Organization uses a classification system, the *International Classification of Functioning, Disability and Health*, to describe health and health-related states. An important part of this system is its focus on the impact of the condition by considering both functioning and disability components as well as contextual (i.e., environment and personal) factors. The naming convention is explained by the organization, as follows:

> ICF is named as it is because its stress is on health and functioning, rather than on disability. Previously, disability began where health ended; once you were disabled, you where in a separate category. We want to make ICF a tool for measuring functioning in society, no matter what the reason for one's impairments… This is a radical shift. From emphasizing people's disabilities, we now focus on their level of health. (World Health Organization, 2002, p. 3)

Within this framework, the "term *functioning* refers to all body functions, activities and participation, while *disability* is similarly an umbrella term for impairments, activity limitations and participation restrictions" (p. 2). The focus on the impact of the condition is emphasised in the Americans with Disabilities Act of 1990 also, which defines disability as "a physical or mental impairment that substantially limits one or more of the major life activities of such individual" (Sec. 12102 (2)). The following definition from Statistics Canada, which applies the World Health Organization's framework, is used in this study.

> Persons with disabilities are those who reported difficulties with daily living activities, or who indicated that a physical, mental condition or health problem

reduced the kind or amount of activities they could do. (Cossette & Duclos, 2001, p. 24)

Disability-Specific Support Services

A group of services provided by the institution and coordinated by dedicated personnel in order to assist students with disabilities. Services might include advocacy, assessment, counseling and advising, funding, mentorship, and coordination of academic accommodations.

Non-Disclosure

The decision by a student not to inform the institution (e.g., administration, instructional staff, support services staff) of their disability.

Types of Disabilities

The following types of disabilities, as defined below, are used in this research.

Mobility Limitation. A permanent or temporary condition that restricts an individual's ability to move freely, such as that caused by a neuromuscular or orthopedic condition.

Chronic Illness. A permanent or chronic health condition that limits the amount or kind of activities a person can do (e.g., Multiple Sclerosis, Cystic Fibrosis, cancer, asthma, severe allergies, a heart condition). This category includes conditions resulting in debilitating pain (Cossette & Duclos, 2001).

Learning Disability. Lerner (2000) defines learning disability as involving difficulty learning to speak, listen, write, read or do mathematics. A learning disability is the result of a neurophysiological problem that impacts memory, auditory processing, visual perception, oral language, or thinking; it is not caused by other problems, such as a visual impairment or mental retardation. A learning disability is characterized by average or above-average

intelligence, as well as a discrepancy between the potential for learning and the level of achievement.

Psychological Disorder. A psychological condition that influences the amount or kind of activities a person can perform; includes bipolar disorder, schizophrenia, or clinical depression.

Visual Impairment. The inability to see or difficulty seeing "ordinary newsprint or clearly seeing the face of someone from 4 metres" (Cossette & Duclos, 2001, p. 16).

Hearing Impairment. The inability to hear or difficulty hearing "what is being said in a conversation with one other person, in a conversation with three or more persons or in a telephone conversation" (Cossette & Duclos, 2001, p. 16).

Other. Any chronic limitation that affects daily living and does not fall within the above categories.

Organization of the Thesis

The work in this thesis blends theories at the intersection of disability and post-secondary education offered at a distance. Chapter II explores several areas of research related to students with disabilities: participation and success in post-secondary education; challenges and benefits associated with distance education; disability-specific support systems; and factors that might influence participation in disability-specific support. Chapter III describes the research design, with a discussion on participant recruitment, site selection, and procedures for data collection and data analysis. Chapter IV presents and discusses the findings of this study, beginning with results from the questionnaire, followed by a presentation of the interviews. Chapter V presents conclusions based on the research, the implications for distance education practice, and recommendations for further research.

CHAPTER II
REVIEW OF THE LITERATURE

Introduction

This chapter examines research involving students with disabilities and distance education in order to provide insight into students' need for and use of disability-specific support services. To begin, characteristics of distance learners with disabilities are explored, particularly post-secondary students. Due to the dearth of research in this area, studies of students with disabilities studying through on-campus delivery are included also. The focus of this component of the literature review was to understand the barriers faced by these students and to identify traits of successful post-secondary students with disabilities.

The second section examines the relationship between distance education and academic success for students with disabilities. Proponents of distance learning cite flexibility, the ease of customization, and learner-centric design to be key strengths. Critics question its value, particularly with the continued shift to online resources and delivery, some of which are inaccessible depending on the student's disability. It is important to consider the impact of distance education as the delivery system itself might be an influential factor in students' use of support services.

Next, the impact of support services and accommodations on academic success is reviewed. As with other areas related to post-secondary students with disabilities, little research exists that empirically evaluates the effectiveness of accommodations and services, although available reports suggest a positive effect. Again, the literature review was expanded to include both on-campus and distance delivery.

Finally, potential factors that influence students' non-participation in support services were reviewed. A variety of elements might influence use, including non-disclosure of the

disability, or lack of knowledge about available services. Other issues, such as past educational experiences, might also impact the type of support students use or require.

Post-Secondary Distance Learners with Disabilities

For adults with disabilities, studying at the post-secondary level is important "because it helps fulfill personal goals… and contributes to independence and financial security" (Fichten et al., 2003, p. 74). To effectively teach and support students with disabilities, their needs must be understood by distance educators and support staff. Unfortunately, "people with disabilities are among the least considered in the educational context of online learning" (Kinash et al., 2004, p. 5). Three reviews of the literature found little empirical data related to distance learners with disabilities. Kim-Rupnow et al. (2001) found only 10 papers that met their criteria to provide information on: learner characteristics; trends in technology; support and accommodations; and overall institutional impact. While Kinash et al. (2004) found 43 articles at the intersection between disability and online learning, only five of the articles were classified as research. In a later review, Kinash and Crichton (2007) found 67 publications released between 2000 and 2006 on distance education and disability. Of these, 27 were didactic, presenting guidelines on related topics such as accessibility or teaching strategies, 18 described vendor products or educational programs, 17 were classified as research (a significant increase from the five articles Kinash et al. found in 2004), and five were considered editorials or opinion pieces.

The following sections present background information on post-secondary students with disabilities, specifically, the rate of participation by disability type, the challenges these students face, and their success in post-secondary level studies.

Participation Rates

Enrolment by students with disabilities has increased significantly over the past 30 years. According to Henderson (1992), in 1978, only 2.6% of full-time freshmen in the United States had a disability. By 1991, this figure had increased to approximately 8.8% (p. 3). Horn and Berktold (1999, p. 7) reported that approximately 6.0% of all undergraduates in the United States had a disability. Continued enrolment growth was shown in the Digest of Education Statistics, which reported that in 2003–2004, 11.0% of undergraduate students had a disability (National Center for Education Statistics, 2005, Table 210). Interestingly, Horn and Berktold (1999) reported that "nearly identical proportions of college graduates with and without disabilities (13 percent) were enrolled in graduate school" (p. 49).

In an extensive study of Canadian post-secondary students with disabilities, Fichten et al. (2003) found great discrepancies among Canadian post-secondary institutions, ranging from <0.01% to 35.7% of the proportion of the student population that had a disability (p. 81). They reported that approximately 5.0% of students with disabilities participated in studies through distance education (p. 90). Interestingly, they found "a weak but significant negative relationship between overall enrolment and the percentage of students with disabilities" (p. 87), i.e., the percentage of students with disabilities was less in larger institutions than in smaller organizations, a relationship similar to that noted by Hill (1992) a decade earlier.

The distribution of disability types varies considerably (Table 2). For example, students with visual impairments comprised 4.1% of the population described in Moisey's (2004) study and 21.7% in Henderson's (1995) study. Similarly, psychological conditions accounted for 2.3% of disabilities in Hill (1992) and 19.7% in Moisey (2004). Some of this variability

may be attributed to changes over time, particularly the increased enrolment by students with learning disabilities. Since 1976, the number of freshmen in the United States with learning disabilities has increased tenfold (Sitlington, 2003). Another significant factor related to this variability may stem from data collection, specifically, the definition of disability used, what question is asked, of whom it is asked, and how percentages are calculated (Fichten et al., 2003). For example, Hill (1992) asked participants to select from the following list to indicate the type of disability: physical impairment; learning disability; visual impairment; chronic health problem; hearing impairment; other (e.g. broken bones, drug abuse); emotional disturbance; and speech/language problem. Horn and Berktold (1999), however, used six categories of disability: learning; orthopedic; hearing; visual; speech; and other, which represented any other health-related disability or impairment.

Table 2

Type of Disability for Canadian and American Post-secondary Students

	Location				
	Canada		United States		
Disability Type	Hill (1992)	Moisey (2004)	Henderson (1995)	Horn & Berktold (1999)	Lewis & Farris (1999)
Physical (%)	30.5	52.3[a]	9.8	23	13.9
Health Condition	11.2		16.3	NR[b]	11.6
Learning Disability	25.1	20.5	32.6	29	45.7
Psychological	2.3	19.7	NR	NR	7.8
Visual	13.0	4.1	21.7	16	4.4
Hearing	11.0	3.0	9.8	16	5.6
Speech	1.2	NR	3.3	3	0.9
Other	4.7	NR	18.5	21	9.0

Note. Percentages might be greater than 100% because some students report multiple disabilities
[a]Includes health conditions
[b]Not reported

Barriers Faced by Students with Disabilities

In a sense, all potential post-secondary students, regardless of ability or disability, face barriers to access to post-secondary education. Berger, Motte and Parkin (2007) suggest there are three broad areas that influence access: academic; financial; and informational/motivational. Looker and Lowe (2001) present more specific factors, including socio-economic status, gender, province of origin, ethnicity or immigrant status, family structure, rural versus urban location, disability, access to information and counseling services, students' attitudes, parental attitudes, and academic ability. They note that

concurrently, “students with disabilities face a number of unique challenges as they move into post-secondary studies” (p. 15). Academic preparation and financial support are important factors related to access. Other influential factors might include the prior educational experiences of the student and the attitudes of parents and teachers. These factors are reviewed below in more detail.

Academic Preparation. According to Horn and Berktold (1999), 56% of students with disabilities were not academically qualified to enter post-secondary institutions. The criteria used to assess qualifications were “high school GPA, rank in class, NELS 1992 aptitude test, and SAT and ACT test scores” (p. 32). They suggest that one reason why students might not be prepared is that “those with disabilities were more likely to have taken remedial mathematics and English courses in high school, [and] less likely to have taken advanced placement courses” (p. v). The indirect impact of taking additional remedial courses is that students with disabilities might have limited exposure to the vocational and life experiences that shape post-secondary goals (Eisenman, 2003).

Financial Support. Funding issues can affect both access and persistence. Johnson (2006) suggests that the lack of funding to improve services for students with disabilities is a significant barrier to post-secondary access. Also, there is a shortage of financial assistance for students. Tagayuna, Stodden, Chang, Zeleznik and Whelley (2005) surveyed 1500 disability support coordinators and found that only 43% offered disability-specific scholarships. Concurrently, students with disabilities tend to be older than their non-disabled counterparts and more likely to have dependents (Horn & Berktold, 1999). Their financial circumstances, such as reducing their income if they studied full-time, might inhibit their ability to participate.

Prior Educational Experiences. The decision to pursue post-secondary studies is influenced by the student's educational experience. While today students with disabilities have rights to access education and to be provided with appropriate accommodation, during much of the past century, students with disabilities were either excluded from public school, or included but isolated from other children (Lerner, 2000). Such treatment can affect self-esteem and motivation. Inadequate support might impact success at the secondary level, which influences students' ability to meet admission standards for post-secondary education.

Adequate preparation for the post-secondary level should include an effective evaluation of post-secondary options. Since the early 1990s, secondary schools in the U.S. and in some provinces in Canada have been required to help students with disabilities develop strategies for the transition from school to adult life. These transition plans must address "the student's transition from school to work, further education, and/or community living" (Ontario Ministry of Education, 2002, p. 4). As part of the planning process, it is expected that students will articulate goals related to post-secondary studies, gain an understanding of their disability, and learn more about the resources and services available (Learning Disabilities Association of Ontario, 2003; Mellard & Lancaster, 2003).

Unfortunately, the potential benefits of these plans are not realized for all students. For example, Hitchings, Luzzo, Horvath, Retish and Tanners (2001) found that only 20% of students with learning disabilities participated in transition planning activities. For some students, misinformation, such as colleges would not accept special education students, was given during planning sessions,. For other students, the plans were incomplete. Shearin, Roessler and Schriner (1999) found that only 57% of plans discussed post-secondary employment, 34% addressed daily living skills, and a mere 22% reviewed post-secondary

education. Inadequate planning might cause students to be unprepared for the transition to higher education.

Attitudes. Finally, the attitudes of teachers and parents can influence a person's choice to pursue post-secondary studies. For example, Hitchings et al. (2001) describe the example of a student who was told to "become a cosmetologist instead [of going into social work] because she wasn't 'smart enough to go to college'" (p. 11). Low expectations can create "powerful psychological obstacles to the pursuit of higher education" (Stodden & Dowrick, 1999, p. 20). In another study (Dowrick et al., 2005), students indicated that, while their parents were very supportive of them in general, they were overprotective and tried to dissuade the student from entering post-secondary studies. Mellard (2005) recommends that both students and their supporters must set realistic goals based on the student's skills and career interests.

Success at the Post-secondary Level

Many students with disabilities overcome barriers to gain access to and participate in post-secondary studies. As students, however, they face barriers to persistence. Attrition rates are higher for students with disabilities in comparison to their non-disabled peers (Institute for Higher Education Policy, 2003). Although attrition rates are higher, a study conducted by the National Center for Education Statistics to provide a comprehensive profile of students with disabilities enrolled in postsecondary education, found "more than half of students with disabilities had persisted in postsecondary education: 41 percent had earned a credential, and an additional 12 percent were still enrolled in 1994" (Horn & Berktold, 1999, p. vi). In a study of 49 students with learning disabilities, Greenbaum, Graham and Scales (1995) found that students adjusted well to post-secondary studies with 90% attaining an undergraduate

degree, although it took participants an average of 5.5 years to complete the degree. In terms of academic achievement, Trainin and Swanson (2005) studied 20 students with and 20 students without learning disabilities from four universities in Southern California. The students without disabilities were matched as closely as possible to the students with disabilities on demographic variables of ethnicity, college major, gender, and academic standing. Trainin and Swanson reported no significant difference in three achievement measures: GPA; reading comprehension; and vocabulary.

Success at the post-secondary level is influenced by many factors. The student must have the requisite academic aptitude. Heubeck and Latimer (2002) recommend reading, writing, mathematics and general knowledge as the most important skills for post-secondary success. But knowledge is only one part of the success model. The development of appropriate learning strategies, such as self-orientation, planning techniques and self-testing, can also enhance a student's performance (Heiman, 2006; Lerner, 2000).

There are other important qualities of successful students with disabilities. Characteristics such as achievement motivation, self-esteem, goal setting, goal-directed behaviour, and personal initiative are related to persistence and success (Hall, Spruill, & Webster, 2002; Heiman & Precel, 2003; Mellard, 2005). Of the various personal attributes, however, self-determination and self-advocacy are critical for success at the post-secondary level and the transition to adult life (Stodden & Conway, 2003; Lynch & Gussel, 1996). These attributes complement each other, enabling the student to identify and achieve personal goals and ambitions (Morningstar et al., 1999). Self-determination represents the student's ability to choose, identify, and achieve goals (Martin & Marshall, 1995). Students should be able to act autonomously and regulate their actions by self-monitoring, self-

instructing and self-managing (Wehmeyer & Schalock, 2001). Part of this process requires students to be strong self-advocates. They must understand their disability and their specific needs for support and accommodation. Most importantly, they must be able to communicate their rights and needs effectively in order to benefit from the services and accommodations available (Stodden et al., 2001; Skinner, 1998).

To achieve success at the post-secondary level, students with disabilities must overcome the barriers associated with their disability. Personal skills and attributes, such as self-advocacy, self-determination, and motivation, can contribute to student success. There are barriers, however, that cannot be overcome through determination alone. The challenges related to the direct impact of the disability can be significant. As such, students might need alternate methods to participate in post-secondary studies. One alternative that holds much promise for helping students overcome barriers is distance education (Paist, 1995; Moisey, 2004; Coombs & Banks, 2000; Ommerborn, 1998).

The Potential of Distance Education for Students with Disabilities

The goal of distance education "is to make education available to anyone anywhere at anytime, [but] this goal cannot be realized unless courses are designed to be accessible to all potential students, including those with disabilities" (Burgstahler et al., 2004, p. 234). Distance learning can help students with disabilities overcome barriers to post-secondary education, as demonstrated by The Open University in the United Kingdom, which is Europe's leading provider of higher education to students with disabilities (Bevan, 2003). With the growth in online and blended learning (i.e., on-campus courses that include online components), institutions must consider accessibility issues and other challenges to ensure

the benefits of studying at a distance are not negated by barriers that arise from course delivery.

Currently, it is unclear exactly how students are affected because little research has been conducted (Kinash & Crichton, 2007). Nevertheless, the potential benefits of distance learning make it a viable alternative for students with disabilities, particularly if courses and materials are accessible. The next section explores the challenges and benefits of distance education for students with disabilities.

Benefits of Studying at a Distance

For students with disabilities, a flexible, adaptable environment that can be adjusted to their unique needs offers many advantages. Paist (1995) notes that "distance learning programs offer flexibility in location, scheduling, and course delivery formats, they can provide disabled students with what may be their last, best hope of access to education" (p. 61). There are three significant benefits of distance learning. First, as Paist suggests, distance education has the potential to be sufficiently flexible to meet the varying needs of this population. Second, because of the high reliance on mediated communication and course delivery, assistive technology can be integrated effectively with course delivery. Finally, distance education can encourage peer support and mentoring through multiple methods for interaction.

Flexibility. It is the flexibility of distance delivery that is so valuable to students with disabilities. Students can study at home, at their own pace without being restricted to a busy lecture schedule (Klemes et al., 2006). Studying from home can be particularly advantageous for students with certain types of disabilities, such as those with mobility limitations, students with chronic illness who might not want to or be able to be away from home, or students who

might not feel prepared for the transition to independent living that would be required if they needed to move away to attend school. Ommerborn (1998) reports the experience of a student with a severe muscle disorder. The student described the impact of the disability and the feelings that influenced his decision to study at a distance, as follows:

> …we did not feel we would be able to cope with a traditional university study. Of course there was also the fact that I did not want to leave my parents and my usual surroundings, did not want to be looked after during my study by a stranger…my parents, on their part, were equally reluctant to let me in to stranger's hands. (p. 3)

Studying at a distance helped this student to experience success at the post-secondary level and achieve the desired credentials.

The flexible learning environment available at a distance provides instructors with the opportunity to "focus the learning process on the student regardless of the student's unique needs and abilities" (Cavanaugh & Cavanaugh, 2004, p. 7). As stated by the Center for Applied Special Technology [CAST] (2008) in its guidelines for the Universal Design for Learning, "students differ in the ways that they perceive and comprehend information that is presented to them" (p. 11). The mediated course delivery associated with distance learning enables educators to provide options for the presentation of information to its students. For example, electronic text of print-based materials can be provided, which can be output "in computer-aided formats ranging from speech synthesis to Braille" (Paist, 1995, p. 67). Furthermore, mediated course delivery facilitates the integration of assistive technologies.

Technology and Mediated Communication. The use of a computing technology and mediated communication offers many benefits for students with disabilities. As Ommerborn (1998) states, "Distance study for students with special needs in unthinkable without media"

(p. 68). Klemes et al. (2006) investigated how a computerized learning environment affected students with learning disabilities. Most students reported that the environment led to increased understanding and comprehension, improved concentration and that they required less tutorial assistance.

Another advantage associated with the integration of technology is the need for strong computing skills in today's marketplace. Computer-mediated education can broaden the experience of students with disabilities (Bricout, 2001), many of whom see competence with information technology as a way to " 'prove their worth' to potential employers" (Bevan, 2003, p. 101). Furthermore, as Burgstahler (1997) explains, "Computers are engaging and fun. When combined with assistive technology, computers help them [students with disabilities] overcome physical, communication, and cognitive challenges imposed by their disabilities. Computers facilitate access to people and resources" ("Results and Discussion" section, para. 1). Through computer-mediated communication, students with disabilities are able to participate in the class in the same way as other students in the class.

The value of technology-based delivery is particularly important considering the significant growth in online learning during the past decade. The Internet has many applications for students with disabilities, including the following: collaborative learning; independent access to information and educational resources; mentoring and peer support; and interaction (Scadden, 1998). Through accessible online delivery, students with disabilities can have access to the full educational experience (Kinash, 2003). The growth of online learning, however, is not exclusive to higher education. Murray (2001, p. 10), found that 17% of employee training programs were delivered using e-learning. Another study of 570 Conference Board of Canada customers found that 77% of the organizations surveyed

used e-learning (Bloom, 2003, p. 9). Gaining experience in a distance learning environment might help prepare the learner for the transition from school to the workplace.

Interactivity. Another benefit of online learning is multiple methods for student-student and student-instructor interaction, such as asynchronous and synchronous conferencing. High levels of student-instructor interaction can facilitate an understanding by the instructor of the student's unique challenges stemming from his or her disability. This understanding can help the instructor to customize the learning system in order to help reduce the impact of the student's disability on learning. Student–student interaction can also be an important element of a distance learning environment. The anonymity of asynchronous conferencing enables all students to interact in a similar manner. For example, blind students can use screen readers and hearing impaired students do not need interpreters to interact with their classmates. Computer conferencing can be particularly helpful for students who lost their hearing as adults and are more comfortable writing rather than using sign language (Coombs, 1998). This ability to interact with peers can ease social isolation, and encourage peer support and mentoring, which in turn may raise the student's academic goals (Scadden, 1998).

In many ways, these technology-based solutions can assist all students, not just students with disabilities. When the Rochester Institute of Technology's National Technical Institute for the Deaf developed a program to add closed captioning to video, they found that the search feature became popular with all students (Carnevale, 2003). Students with dial-up access benefited from having fewer images on a web-site, not just visually impaired students (Burgstahler et al., 2004). Providing captions and titles to images help all students by giving a more detailed description of the image, while accessible web page design can help "all learners by 'chunking' the information into blocks of important information that can be

easily read and understood by any audience" (Opitz, 2002, p. 17). As Hoffman, Hartley, and Boone (2005) suggest, "Adaptability is the key to success for accessibility efforts. Just as physical accommodations, such as curb cuts, … proved to be handy for others … similar serendipity effects may be realized from effective accommodations created in the digital world" (p. 172).

Distance learning offers students with disabilities tremendous flexibility in time and location. Students can work autonomously in a self-paced environment and can benefit from the ability of distance education to accommodate different learning styles. Participation in distance education, however, is not a solution for all students with disabilities. In the next section, some of the challenges that face distance learners are discussed.

Barriers in the Distance Education Environment

The challenge for distance educators is to balance the needs of all learners. This section will review two significant challenges facing distance educators of students with disabilities. First, technological solutions have much potential to help learners, but technology that helps one student might exacerbate the problem for another (Kinash, 2003). Second, challenges related to socialization, including interaction with others in the class and the instructor, will be reviewed.

Technology-Related Issues. Educators must be careful not to assume that a technology-based solution will work for all learners. As Bricout (2001) recommends, instructors and course designers must be careful not to assume there is a universal learner, which can lead to "the creation of both public and private facilities and services that have proven inaccessible to individuals with disabilities who do not fit the 'mold'" (p. 268). For students with print-based learning disabilities or those with visual impairments, the volume

of text-based material in distance education courses is problematic (Klemes et al., 2006). The lack of kinesthetic activities can be a concern for students with learning disabilities (Cook & Gladhart, 2002). There are other side effects of technology-based learning. For example, some faculty "may no longer see the need to make reasonable accommodations for blind post-secondary students in traditional face-to-face classes, if they see the place of such students outside of the building in front of their computers" (Kinash, 2003, Question Three: Creating New Problems? section, para. 3).

Accessibility of electronic resources is a serious problem. Accessibility guidelines have been created by groups such as the World Wide Web Consortium and the United States government under Section 508 of the Rehabilitation Act (Wall & Sarver, 2003) but these guidelines do not encompass the needs of all students with disabilities. An accessible design for one student does not mean it is accessible to all students (Hoffman et al., 2005). Moreover, the availability of guidelines does not guarantee they will be followed. Many "basic packaged software applications … create products that are not accessible" (p. 172), including Web development tools, portable document tools and course management systems, many of which are required for participation in online courses.

The continued growth of online course delivery and the need for accessibility is a considerable issue that must be addressed. The current situation is summarized by Opitz (2002), as follows:

> Although the Internet has the ability to provide even greater independence for individuals with disabilities, it can often exclude the audience that can benefit the most. Students use the Web as a fundamental tool to gather course information, conduct research, submit assignments and participate in collaborative interaction with other

> students. Inaccessibility restricts the educational experience provided for non-disabled learners and inhibits their success in learning how to efficiently gather information via the Web. (p. 10)

The challenge for educators is to ensure that new technologies, particularly in online learning, are integrated to meet accessibility needs, rather than being counter-productive and adding barriers to learning.

Barriers to Interaction. Another barrier in a distance education environment pertains to interaction, both interaction among students and interaction with faculty. According to Moore (1989), there are three interaction patterns in distance learning: learner-content; learner-learner; and learner-teacher. Although he acknowledged that learner-content interaction was "a defining characteristic of education" (p. 2), he emphasized that learner-learner interaction "is sometimes an extremely valuable resource for learning, and is sometimes even essential" (p. 4). Also, Moore saw learner-teacher interaction as the most valuable in providing "reality testing and feedback" (p. 4) in order to help the learner ensure the accuracy of conclusions and knowledge drawn from learner-content interaction. While various authors place greater emphasis on a specific type of interaction (e.g., Garrison & Shale, 1990), each has a valuable role in education. As Anderson (2003) asserts, however, the provision of all three forms concurrently may be unnecessary, "deep and meaningful formal learning is supported as long as one of the three forms of interaction (student–teacher; student-student; student-content) is at a high level. The other two may be offered at minimal levels, or even eliminated, without degrading the educational experience ("Equivalency of Interaction" section, para. 3).

There are challenges to interaction for all students in a distance learning environment. Currently, interaction is achieved through asynchronous and synchronous computer-mediated communication systems as well as other media, such as telephone and television. Common asynchronous systems include e-mail and text-based discussion groups via the Internet, which enable users to participate without being time- or place-bound (Weisskirch & Milburn, 2003). Time flexibility enables students to reflect on the material before commenting, and shy students are more likely to participate online than in a face-to-face discussion (Bichelmeyer & Kiggins, 1998). Although synchronous systems reduce the learner's time flexibility, these methods are effective tools for collaborative study. Video-, audio- and text-based conferencing help reduce the isolation associated with distance learning, providing learners with the opportunity for discussions and immediate feedback on their ideas.

Mediated communication has many advantages for students with disabilities, particularly when integrated with assistive technology. The provision of tools for interaction, however, does not guarantee high-quality interaction nor a sufficient degree of accessibility. Synchronous conferencing, which requires students to use real-time text-based communication, can be difficult for students with certain types of disabilities, such as a visual impairment or learning disability. This creates a barrier to class participation when the interface is different for students with disabilities (Coombs, 1998). When students are able to use the same interface, a different problem arises.

> Computer-mediated communications render the very notion of disability abstract and intangible. With a dearth of face-to-face contact and direct experience, the learning challenges and strengths of students with disabilities may be rendered invisible to classmates and instructors. Opportunities to create relationships based upon mutual

> knowledge and respect may be lost with a false presumption of sameness. (Bricout, 2001, pp. 270-271)

This "presumption of sameness" creates problems, particularly when customized materials or special accommodations are needed.

Many faculty receive no training related to working with students with disabilities (Maddux, 2004) and might be "totally ignorant of the needs of disabled students" (Coombs, 1998, p. 152). Without knowledge of a student's disability through student disclosure or cues that might be provided through interpersonal interaction, it is difficult to identify "the learning accommodation needs of a student with a disability, … [such as] the case of students with learning or psychiatric disabilities, whose impairments could be mistaken for poor work habits" (Bricout, 2001, p. 273). Educators need to assess the value of computer-mediated interaction while considering the potential barriers that may develop in order to find a solution to effectively meet the needs of students with disabilities.

Overcoming Barriers in the Distance Environment

Distance education can be a viable alternative for students with disabilities. The aforementioned benefits can be realized if educators consider the needs of learners with disabilities. Accessible distance learning has the potential "to level the playing field for people with disabilities" (Burgstahler et al., 2004, p. 234). Three key elements can play an important role in creating an accessible distance environment. First, accessible design, implementing strategies such as universal design for learning (CAST, 2007) can minimize the barriers created through technology. Second, accessibility training for faculty and staff is critical. Finally, providing specialized support to learners, which will be discussed in the next section, can help students overcome the barriers they face.

The past decade has seen exponential growth in the use of online resources for distance education. A study of institutions offering distance education courses found that 95% used web sites in distance delivered courses. Of these institutions, however, only 18% used accessibility guidelines to a major extent and 28% reported that they used them moderately (Waits & Lewis, 2003). The Internet can be a powerful tool for students with disabilities when the information is accessible. To obtain the full benefits of this tool, however, educators must embrace the principles of universal design (Scadden, 1998). Universal design for learning recommends designers use the following strategies to develop accessible materials:

> multiple means of representation, to give learners various ways of acquiring information and knowledge; multiple means of expression, to provide learners alternatives for demonstrating what they know; [and] multiple means of engagement, to tap into learners' interests, offer appropriate challenges, and increase motivation. (CAST, 2007, "Universal Design for Learning calls for…" section)

These guidelines can help all students, not only learners with disabilities. By designing multiple ways to achieve the same competencies, educators can maximize the benefits of online learning and other technological tools.

Technology and course design is only one part of the solution to ensure the challenges created through distance study are minimized. The most important element in the equation is faculty and staff.

> Teaching, whether face-to-face or at a distance, is communication, and we are essentially talking about special barriers to communication. Clear communication is

> essential to good teaching, and clear communication is the most important factor in open learning to students with disabilities. (Coombs & Banks, 2000, para. 4)

This communication is hampered if faculty and staff do not understand the needs of students with disabilities. Maddux (2004) noted that while many institutions promoted online learning, very few provided "adequate training and support for faculty who [were] willing to design, produce, and offer online coursework" (p. 27). To complement training related to technology and accessible course design, information on the needs and abilities of distance learners with disabilities needs to be provided. This knowledge can help instructors overcome barriers to interaction and participation that students might encounter in a distance delivered course.

Distance education can be an effective delivery system to provide access to post-secondary education for people with disabilities. It can be adapted to meet the needs of a variety of learners and provide new opportunities to overcome disability-related barriers. Course design and delivery, combined with effective training and development of faculty and instructional staff, however, can never eliminate all barriers faced by students with disabilities. As Moisey and Hughes (in press) propose, "to overcome barriers and achieve success, the online learners require appropriate, individualized, disability-specific support services and, when required, suitable assistive technology" (Resources for Online Learners with Disabilities section, para. 1).

Supporting Distance Learners with Disabilities

The direct and indirect impact of a disability can create obstacles to success for students with disabilities. To help learners fulfill their goal to gain post-secondary credentials, most educational institutions in Canada provide dedicated personnel that

specialize in supporting students with disabilities. Stodden and Dowrick (1999) emphasize the importance of the student's support network to help maintain students persistence.

> Failure to provide appropriate academic development services, supports, and programs for students with disabilities may cause them to achieve grade-point averages well below that of their nondisabled peers which, in turn, may hasten their withdrawal from post-secondary settings. (pp. 20-21)

The use of disability-specific support services can help students persist, leading to greater success at the post-secondary level.

Disability-specific support services involve a range of assistance, including academic accommodations, advocacy, and advising. The services are supplemented by other types of generic support available to all students at the institution, such as counseling, the library, financial aid, and career services. The following section explores the provision of support, including the services and accommodations available, students' use of these support services, and the impact of institution-based support.

Support Services and Academic Accommodations

The support needs of students are unique, as are the type and severity of their disability and the circumstances in which they live. No single strategy can effectively serve every student. Instead, support services need to be sufficiently flexible to ensure a customized plan is available for each learner. Services generally focus on "advocacy, informational services, or remediation of content" (Stodden et al., 2001, p. 190). Each institution has its own approach for student support, using either a central administrative unit or a combination of support departments. Some institutions might not "have the resources or clientele to sustain a stand-alone office that provides such services" (Killean & Hubka, 1999, p. 186). Instead,

services are shared among other groups, such as counseling, learning support, and other student service departments. Interestingly, Killean and Hubka note that although students "prefer to have access to services that are responsive to their disability-related needs, they do not always need to receive services through the auspices of a disability service office" (p. 196).

Support Personnel. The two primary roles of the disability service provider are "helping students with disabilities to develop appropriate accommodation plans; acting as a resource for faculty, instructors, staff and others at the educational institution who need information about appropriate accommodation and documentation" (Alberta Human Rights and Citizenship Commission, 2006, p. 2). Personnel providing support might include the following: psychologists; learning strategists; advisors; assistive technology specialists; exam coordinators; and other coordinators, including liaisons with other institution-based services or external agencies (Athabasca University, 2007; University of Alberta, 2007; University of Calgary, 2007; University of Lethbridge, 2007). Many support providers have specialized training, including graduate degrees in psychology, counseling, or social work.

Faculty and other instructional staff also are critical members of the support network. For example, Cain, Marrara, Pitre and Armour (2003) found that graduate students studying at a distance often sought assistance from the course professor regarding academic and administrative matters, with two students indicating "that they primarily relied on their professor and looked to him as their main source of support" (p. 50). Many students value faculty mentorship and considered it a vital part of their education (Dowrick et al., 2005).

Appropriate Accommodations. Academic accommodations are used to make instruction accessible (Paist, 1995). Adjustments might be made to a student's course load,

the format of course materials, the delivery mode of the course, or extended time to complete the course (Athabasca University, 2007). Of these changes, the most prevalent is exam accommodations, which includes increased time to complete an exam, modified exam format, and the ability to use tools such as a word processor or assistive technology. Academic accommodations, however, should not change academic performance standards, as the authors below emphasize.

> Basic academic competencies are essential for college students with disabilities because no degree of support or curriculum modification can compensate for lower cognitive functioning or lack of sufficient academic preparation. Academically marginal students will have difficulty irrespective of course modifications. (Lynch & Gussel, 1996, p. 352)

Institutions may have reasonable and justifiable requirements of a student, such as performance standards for music students or basic competencies for medical students. Students are required to "develop the essential skills and competencies expected of all students" (Alberta Human Rights and Citizenship Commission, 2006, p. 6).

The second category of support relates to the psychosocial needs of the student. Support personnel provide advocacy and counseling. Advocacy is a critical component because students sometimes encounter faculty who are unwilling to assist them (Dowrick et al., 2005). In such situations, "disability service providers can help to validate the required accommodations" (Killean & Hubka, 1999, p. 189). With this support, students may gain confidence to discuss their case with their professor, encouraging their self-advocacy skills. In addition to advocacy, counseling is an important part of support services. Ommerborn (1998) suggests that contact with tutors and counsellors ensures students do not feel isolated,

a suggestion reiterated by Graham-Smith and Lafayette (2004), who emphasize that a caring, safe environment helps students overcome the isolation and separateness they might feel, which is particularly important in a distance environment.

Informational Services. The provision of informational resources is a critical component of support for students with disabilities. For prospective students, assistance establishing learner readiness is valuable as it can help learners prepare for their learning experience by reviewing important variables, such as access to technology, proficiency in the language of instruction, and educational goals (Moisey & Hughes, in press). Once the student is enrolled, general information, such as campus orientation, assistive technology, or resources on disability-specific services, is often available.

Another service is to act as a liaison to other departments within the institution or to external agencies. Disability services staff might refer students to other experts within the community for assistance.

Still another form of information services relates to disability assessment. Because the rate of disability increases with age, many distance learners are diagnosed with a disability in adulthood. As such, they might not have the necessary knowledge or experience to anticipate the impact of their disability on their studies. Some students are diagnosed with the disability, or incur the disability, while completing their post-secondary studies. Disability services can help students understand their diagnosis and its implications.

Students' Use of Support Services

One of the greatest challenges facing service providers is knowing how best to support students and what services to provide. This problem is compounded by the lack of research exploring the relationship between receiving support and achieving success in post-secondary

studies. Several authors have identified the need for further research in this area (e.g., Stodden & Dowrick, 1999; Mull, Sitlington & Alper, 2001; Cook & Gladhart, 2002; Kinash & Crichton, 2007).

There are a few recent studies of students' use of support services and these suggest a positive relationship between support and persistence. These studies found that students tended to use testing accommodations most often (Tagayuna et al., 2005; Sharpe, Johnson, Izzo & Murray, 2005). Moisey (2004) found that exam accommodations were slightly less common than the most prevalent support, extended contract time. Other commonly used support services included the following: personal counseling; advocacy assistance; and other exam accommodations such as alternate format or a different testing environment.

The use of support services appears to vary by type of disability. Sharpe et al. (2005) reported that accommodations "designed for individuals with 'low incidence' disabilities such as visual or hearing impairments" (p. 7) were used less frequently. Moisey (2004) found some variance in the use of a specific support among disability types. While 76.4% of students with learning disabilities received extra time on exams as an accommodation, only 50.0% of students with a hearing impairment used this type of support (64.6% of study participants in general received this accommodation). Similarly, 83.9% of students with psychological disabilities used extended course contract time in comparison to 58.3% of students with a visual impairment.

Disability-specific support services can help students overcome barriers and achieve success in their post-secondary studies. Although research related to the direct impact of services on student success is limited, there is evidence that the use of support services contributes to student achievement. Despite potential benefits, some students with disabilities

choose not to avail themselves of these services. Fichten et al. (2003) estimate that "there are over 100,000 students with disabilities currently enrolled in Canadian post-secondary education, although only 1/4 to 1/2 of them register to receive disability related services" (p. 72). A variety of factors might influence this choice, as discussed in the next section.

Factors Affecting the Use of Support Services

The goal of support services is to help students overcome barriers associated with their disabilities. Little is known about the students' reasons for not using support services. Some potential factors that might influence this choice include not wishing to disclose the disability, not understanding or being aware of their rights and responsibilities related to accommodation, or receiving adequate support from other sources. This section discusses these potential factors.

Non-Disclosure

For students with disabilities, one of the most significant decisions made during their studies is whether or not to inform the institution, including faculty, staff, and other students, of their disability. In a classroom setting, an instructor might receive visual cues related to some disabilities, such as a student's wheelchair or guide dog. Many disabilities, however, are *invisible* without external cues, such as a learning disability or psychological condition. In a distance learning environment, where communication is mediated, there is little to indicate that a student has a disability outside of performance on assignments or examinations. Without explicitly disclosing the disability, the student will likely not be identified as disabled. At the post-secondary level, it is the student's responsibility to inform the institution of a disability, rather than the institution identifying the student.

The decision of a student not to disclose his or her disability is influenced by many factors. For some students, the disability has no effect on their studies and, not requiring any specialized services, they choose not to inform their instructors or the institution. Other students might not want to share the information for privacy reasons. Some students, such as students with chronic health conditions, may be concerned that others outside the post-secondary institution will learn of the disability. Another issue for students is their own need for autonomy. Some students experience conflict between their desire for independence and their interest in using available services (Johnson, 2006).

Attitudes of Others. The choice not to disclose a disability might also be influenced by the attitudes of academic or administrative staff. For example, Conway described a situation where she was told by a disability service provider that she "was not 'deaf-blind enough' because [she] could carry on a conversation without the use of a sign language interpreter and could walk into the room without bumping into a wall" (Stodden & Conway, 2003, p. 28). Another issue facing students with disabilities is the spread phenomenon, which relates to the perception that different personal characteristics belong together. Wright (1983) gives the example of how a student perceived a young man with cerebral palsy. The student anticipated that because the young man's movements were "so racked with spasms…[the student] expected his thoughts to be jerky also" (p.61). This phenomenon can influence faculty's perception of students with disabilities, also. In this scenario, an attitude develops that a person with a disability needs assistance in all areas, not just an area specific to their disability. An instructor, for example, might question the general competence of a student after the disability is revealed (Lynch & Gussel, 1996). The result is that many students feel stigmatized by the misconception that disability means inability (Dowrick et al., 2005). In

other cases, “although staff may not overtly express negativity toward these students, they may lack adequate understanding of specific needs” (Johnson, 2006, “Faculty Attitudes” section, para. 1).

The attitudes of their peers may be a concern for some students. For example, the earlier negative experience of disclosing their disability in the workplace might influence a learner’s choice not to inform their instructors. Adults with learning disabilities might have worked with colleagues and supervisors who were insensitive to their “invisible” disability (Fast, 2004; Lerner, 2000). For some students, the challenge stemmed from their non-disabled classmates, who questioned the students’ accommodations (Dowrick et al., 2005). If the student has had a negative experience associated with the disclosure of their disability, it might impact their decision to reveal the disability to the institution. Moreover, some students indicate that they are simply are “tired of the label” (Dahl, 2005, p. 4) placed on them when they are identified as having a disability.

The student’s choice not to disclose his or her disability will result in the student not receiving support services or accommodations. Post-secondary institutions have no responsibility to identify students with disabilities. Rather, the student must provide adequate documentation of the disability, disclose the disability, know what kind of assistance they require and, most importantly, be effective self-advocates (Beale, 2005). As such, Eckes and Ochoa (2005) recommend students “rid themselves of any discomfort disclosing their disability, because they are unlikely to receive accommodations without first telling their instructor of their special need status” (p. 17).

The Right to Accommodation

In many jurisdictions, educational institutions have a legal obligation to provide a non-discriminatory learning environment for all students. With the introduction of the *Rehabilitation Act of 1973* in the United States, post-secondary institutions have been required to ensure equal access to qualified students, regardless of disability. In Canada, students' rights are protected by the Canadian Charter of Rights and Freedoms as well as provincial legislation, such as Alberta's Duty to Accommodate policy, which is based on Alberta's *Human Rights, Citizenship and Multiculturalism Act*, as education falls within the jurisdiction of the provinces and territories.

There are significant differences in the rights and responsibilities of students and institutions between the secondary and post-secondary levels. At the post-secondary level, "students with disabilities are charged with the bulk of the responsibility for initiating, designing and ensuring their own educational accommodations" (Stodden & Conway, 2003, p. 25). This responsibility is a marked contrast to secondary schools: "the burden of locating and serving students in need of special education at the elementary and secondary school level rests on school officials" (Eckes & Ochoa, 2005, p. 9).

The result in these differences between secondary and post-secondary levels is that some students will not have access to these services because they do not know they are responsible for seeking this assistance. A mature student who developed a debilitating condition after leaving secondary school, for example, might be unaware of the available services or his or her rights to accommodation. Similarly, a recent high school graduate might think the same service levels are provided at the post-secondary level and be unaware of their need to inform the institution (Lynch & Gussel, 1996). This change forces students to

justify the accommodations they require and without strong self-advocacy skills, some students might be unprepared to seek the accommodations they need.

Support from Other Sources

The decision not to use disability-specific support services might be made because the student already has adequate support from other sources, e.g., other support services at the institution, external agencies, family and peers. The student may also have devised their own accommodations in order to minimize the impact of the disability on his or her studies.

In a distance education environment, a student might prefer locally available support to obtain face-to-face support. In general, support provided at a distance is mediated, with written communication, telephone, audio or video technology, computers, and television as prevalent formats (Simpson, 2000). The primary disadvantage of mediated communication for support services is "the absence of visual cues both of the person…and their background" (p. 58). If a student is uncomfortable with mediated support, it might be difficult for him or her to establish the trust needed to request assistance, which might influence the student's decision to seek local support. Another reason a student might seek assistance from another agency is a pre-existing relationship with that organization. If adequate support is available to the student already, support from the institution might be unnecessary.

Many students receive much support from sources outside the institution or through another agency. Some use informal supports like family and friends. Others may use independent learning strategies to acquire the knowledge or skills they require. In a study of how students learned to use assistive technology, for example, 84% of the students showed "a considerable level of self-reliance and assistance in the form of natural supports (e.g., friends, family members)" (Sharpe et al., 2005, p. 10). Students' peers also play an important

support role. For example, “other students with disabilities serve as a resource for information about available services, advocacy, and supports” (Dowrick et al., 2005, p. 45). Burgstahler (1997) found that peer-to-peer interaction fulfilled an important social need and promoted academic success, something that can be difficult for a formal agency to provide. Sharpe et al. (2005) also found that many students were able to make their own academic accommodations (such as sharing learning needs with the instructor, changing the learning environment or modifying their daily routine). Students with sufficient natural supports who are skilled at self-advocacy and self-reliance, might not need institutional support.

Reasons Why Services May Not Meet Students’ Needs

With so little research on the characteristics, motivations, and expectations of students with disabilities studying at a distance, it is difficult for disability-specific service providers to understand students’ needs and expectations. Many universities, for example, struggle to develop “appropriate assessment and treatment protocols because of a lack of empirical research on the characteristics of university students with SLD [Specific Learning Disabilities]” (Heubeck & Latimer, 2002, p. 273). Without a clear understanding of students’ needs, institutions cannot ensure the required services are offered.

Some institutions might limit available support due to significant funding cuts to post-secondary institutions. Tagayuna et al. (2005) indicated “institutions adapt most easily to disabilities which require the most available, least expensive, and most feasible support” (p. 19). The implications of these financial cutbacks are great because funding cuts have occurred in conjunction with increasing enrolment by students with disabilities (Christ & Stodden, 2005). Another strain on budgets is the cost of technological solutions. The result is that some students might not have access to necessary services because institutions do not

have the financial resources to effectively integrate assistive technologies, which is of particular concern in a distance environment.

A second issue exacerbated by funding cutbacks is the inability of institutions to provide individualized support for each student. In a study on the post-secondary education experiences of adults with disabilities in 10 U.S. states, students indicated that "post-secondary service providers should focus on each individual's needs rather than on a formula according to the individual's disability" (Dowrick et al., 2005, p. 44). Students in that study also noted that disability service offices were understaffed, assisting only students with the most urgent needs. Students in the Killean and Hubka (1999) study, which examined the type and level of disability-specific support services, the types of accommodations, and the associated policies at post-secondary institutions in Canada, considered the availability of a wide range of services to be beneficial. If an institution does not have the resources to provide such variety, it might be unable to fulfill students' needs.

Support that does not meet the psychosocial needs of students might be discouraging (Cain et al., 2003). Johnson (2006) found that students with disabilities who did not complete their degrees cited the lack of social support as a reason for not persisting. They felt "their overall psychological and social needs [were] not being adequately addressed by these services, which may contribute to a lack of adjustment to the higher education environment overall" ("Student Services" section, para. 2). Interaction with service providers and other support personnel was highly valued by students and was also recognized by service providers "as an important feature of accessibility within the institution for a variety of reasons" (Killean & Hubka, 1999, p. 185). If insufficient resources prevent an acceptable

level of interaction, educators might be unable to create the conditions needed to develop the trust students need to disclose their disability or participate in services and accommodations.

Regardless of the services and accommodations available, the success of these supports is greatly influenced by the objectives of the service providers. As Paist (1995) asserts, “nothing, however, is more important than attitude and philosophical approach toward serving students with disabilities in distance education programs” (p. 70). This position is reiterated by Floyd and Casey-Powell (2004) who emphasized the importance of focusing the services on the student’s needs, rather than the expectations of the institution. Mull et al. (2001) expressed concern over the lack of training for support professionals. Their extensive review of the literature on post-secondary education for students with learning disabilities revealed few studies on staff training. Only 38% of the articles addressed training for “the professionals who work daily with students” (p. 106). Lack of adequately trained support staff may be a deterrent to the use of disability-specific support services.

CHAPTER III
METHODOLOGY

Introduction

The purpose of this research was to gain a greater understanding of graduate students' with disabilities studying at a distance and their experience with disability-specific support services. This chapter describes the research design, including a discussion on participant recruitment and site selection, and procedures for data collection and analysis.

Research Design

This research employed an exploratory case study design, which was chosen "to uncover the interaction of significant factors" (Merriam, 1998, p. 29). This study explored the factors related to graduate students with disabilities' characteristics and their use of support services. The research employed a case study design to "present a complete description of a phenomenon within its context" (Yin, 2003, p. 5).

In the first phase of the study, both quantitative and qualitative data was collected through an online questionnaire. The questionnaire served an exploratory purpose to identify attributes of the population (Babbie, 2004). While Babbie suggests a questionnaire can be used to identify attributes of a larger population from a small sample, generalizations cannot be made to a larger population because this research used a case study methodology. In the second part of the project, e-mail interviews were conducted. This qualitative component enabled the researcher to establish a holistic view of the phenomenon (Creswell, 2003), by studying "how [people] make sense of their world and the experiences they have in the world" (Merriam, 1998, p. 6). Specific details regarding the data collection and analysis are given in subsequent sections of this chapter.

Site of the Study

According to Merriam (1998), “the single most defining characteristic of case study research lies in delimiting the object of study, the case” (p. 27). The system must be “intrinsically bounded” (p.27) or it is not a case. In this study, the bounded system was the Centre for Distance Education at Athabasca University, the programs it offers, and the students it serves and has served.

Moisey and Hughes (in press) identified Athabasca University as an example of a distance education organization with learners dispersed across a large geographical area. As a result, media-based student support, much of which is web-based, is essential. Unlike most post-secondary institutions in Canada that offer courses on-campus and a distance, Athabasca University offers its programs exclusively at a distance. As such, all participants fulfilled the criteria of distance learner.

To further define the bounded system, the programs offered by the Centre for Distance Education were used for the study because they are delivered entirely online, exclusively to graduate students.

Participants

Participants were either current students, non-program students taking CDE courses, or graduates of the MDE program. Program students were registered in either the Master of Distance Education or the Graduate Diploma in Distance Education Technology program. Non-program students were taking or had recently completed a CDE course but were not registered in a specific program. Graduates of the CDE programs were included in the study, as well, in order to capture their experiences.

Instrumentation

For this study, two instruments were used to collect data sequentially, an online questionnaire (Appendix C) followed by an e-mail interview (Appendix E). The questionnaire was based on information from journal articles, web sites (including support services web sites at the institution), books, surveys from Statistics Canada, and other literature. The purpose of the questionnaire was to gather data on demographics, type of disability, use of support systems at Athabasca University, previous experience with support services, and disclosure of the disability.

A pre-test was completed to ensure there were no technical errors on the questionnaire and to test questionnaire instructions for accuracy. Testing was completed using both Microsoft Internet Explorer and Mozilla Firefox web browsers. As a result of the pre-test, minor navigation issues were corrected on the questionnaire.

To gain more in-depth data related to the use of support services, respondents were asked to participate in an e-mail interview. In particular, data was gathered on participants' past experience with disability-specific support, the impact of their disability, studying at a distance, their choice related to disclosure of the disability to the institution, and use of disability-specific support services at the institution.

Data Collection Procedures

Recruitment

A recruitment letter (Appendix A) was sent by e-mail to potential participants in October 2007. The message was sent to a total of 886 potential participants, which included 463 program and non-program students as well as 423 graduates of the department. The letter asked that only those with disabilities (or some other form of limitation that affected their

day-to-day life) complete the online questionnaire and, if they chose, volunteer to participate in an e-mail interview.

Online Questionnaire

In the first phase of the study, participants were invited to complete the online questionnaire (Appendix C). The questionnaire was posted online through Zoomerang.com. Kraut et al. (2003) caution that there are issues related to informed consent when using online data collection and recommend the use of a "click to accept" button to indicate consent (p. 19). This suggestion was implemented and participants were only able to access the questionnaire questions if they selected "I accept" on the online Informed Consent (Appendix B).

Interviews

Upon completion of the questionnaire, respondents were asked to participate in an e-mail interview. Through a separate survey in Zoomerang (Appendix D), respondents were able to provide the researcher with their e-mail address if they were willing to participate in the interview. A separate survey was used to gather the e-mail address to ensure anonymity of the other respondents. Upon receipt of the respondent's e-mail address, the interview questions were e-mailed (Appendix F) to the participant in November 2007.

Online Data Collection

There are important ethical issues that must be considered when online data collection occurs. Issues to consider include the exclusion of potential participants, the lack of non-verbal cues, the collection and authentication of informed consent, and the protection of the privacy of participants (Kanuka & Anderson, 2007; Merriam, 1998). These are valid concerns and were considered in the design of this research.

Merriam (1998) suggests that online data collection will automatically exclude participants from the study, and skew the sample to include only those with computer access. As discussed, this issue was one reason why students and graduates from the CDE only, rather than the general Athabasca University population, were invited to participate.

The second concern Merriam raises is online data collection does not allow the researcher to observe non-verbal cues and "immediate reactions, strong emotional responses, and unguarded expressions are all lost to the researcher…conversely, a casual response may have an unexpected and unsettling permanency" (p. 129). While the immediate reaction might be lost, James and Busher (2006) reported that e-mail interview participants found the interview process less stressful because they could answer questions at their leisure. As well, e-mail can produce rich data because "writing can be a highly effective form of communication that encourages reflection and precision of expression" (Garrison & Kanuka, 2004, p. 97).

More recently, Kanuka and Anderson (2007) raised several ethical considerations related to online data collection. For example, while consent can be gathered electronically, authenticity cannot necessarily be verified unless a software intervention, such as a digital signature, is used. Other concerns raised by Kanuka and Anderson are technical problems if an electronic signature is used for consent, potential risks to vulnerable populations, and the potential to conceal important demographic information. These are valid concerns and were considered in the design of this research, including the electronic distribution of the recruitment letter and the use of the 'click to accept' button as discussed.

Finally, the protection of the participant's privacy is an important consideration. To maximize privacy, the recruitment letters were sent to potential subjects by a staff member at

the institution. Second, the online survey was completed anonymously. Finally, as part of the data analysis (described below), personal identifiers were removed from the interview transcriptions prior to analysis and all e-mail correspondence between the researcher and participants was deleted.

Considering these issues, an online collection strategy was chosen because it offered three advantages. First, it simulated the environment through which students commonly receive support services, as online information and e-mail are typically used for informing and providing support to distance learners (Moisey & Hughes, in press). Second, e-mail interviews can be used to overcome the practical constraints (e.g., costs for travel or long distance phone calls) associated with face-to-face interviews of a geographically disparate group (James, 2007). In was not feasible to conduct face-to-face or telephone interviews as the CDE students and graduates reside in at least 20 different countries (B. Spencer, personal communication, November 12, 2007). Third, online data collection can give "us the ability to access participants who might otherwise be unable to participate ... for a variety of reasons (e.g., geographic, disabilities, situational)" (Kanuka & Anderson, 2007, p. 9). The use of the Internet and e-mail provided a means for the researcher to communicate the same way with all participants, and, if necessary, allowed participants to use assistive technologies for communication.

Data Analysis

Analysis of the Questionnaire Data

Questionnaire data were exported from Zoomerang and imported into Microsoft Excel. Descriptive statistics were computed using standard Microsoft Excel functions.

Analysis of the Interview Data

The interview data were analyzed using content analysis, following the steps outlined by Creswell (2003), specifically: clustering of similar topics; selection of categories and codes; assembling the data by category; and recoding data when necessary. As Neuman (2000) suggests, "qualitative coding is an integral part of data analysis…[and involves] two simultaneous activities: mechanical data reduction and analytic categorization of data into themes" (p. 421). It is the process of generating these codes that helps the researcher to begin to understand the relevance of the words on the page and their relationship to the study's purpose.

During the development of the research instruments, questions were grouped by theme to fulfil Creswell's (2003) recommendation of clustering similar topics. Upon completion of the e-mail interviews, responses were copied into text files and any information that identified the subject (e.g. header information from the e-mail) was removed in order to be more objective. Once personal identifiers were removed, the data were re-ordered and the researcher paused for two weeks.

These steps were completed to minimize the risk of the researcher recalling from whom the data was submitted. There is a risk in an interview that an interpretation of data can be distorted by the researcher's interpretation of social characteristics (e.g., race, gender, age) (James & Busher, 2006). To minimize this risk, all identifiers were removed from the data before analysis.

Development of Categories and Codes. To generate the initial list of codes, the researcher waited until all data were collected, rather than using a start list, which is a set of

codes identified prior to data collection (Miles & Huberman, 1994). Based on the research questions and the literature review, the following five themes were identified.

- Need for support
- Other forms of support
- Non-use of support services
- Barriers that arise studying at a distance
- Benefits studying at a distance

Using the above five themes, 48 codes were generated. As Bogdan and Biklen (1998) suggest, "while it is difficult to throw away data or categories, analysis is a process of data reduction" (p. 183). Upon the first review of the data using these 48 codes, it was recognized that many of the codes overlapped. The superfluous codes were eliminated (Table 3), leaving 31 codes. Table 3 lists the codes and shows how they changed.

For example, several codes related to technology were eliminated. Initially, the researcher thought it important to distinguish various technologies, so the original list included codes such as computer, laptop, other hardware, software, and other assistive technology. Such specific codes, however, generated little meaningful data due to the dearth of units of data for any one specific code. The list was modified so that all technology-related data were grouped under a single category – technology.

Table 3

Theme-Based Codes

Theme	Final Codes	Eliminated Codes
Other Forms of Support	Family Supports	Computer
	Friends	From Institution
	Instructor	Laptop
	Natural Supports	Other Hardware
	Non-Institution Agencies	Other Software
	Other Department	Other Assistive Technology
	Staff Member	
	Study Methods	
	Technology	
	Tutor	
Non-Use of Support Services	Attitudes of Instructors	Autonomy
	Attitudes of Others	Don't Want Support
	Attitudes of Peers	No Need Support
	Do not Need Support	Non-Use of Support Services
	Non-Disclosure	
	School History	
	Sufficient Support Elsewhere	
	Use of Support Services	
	Work History	
Need for Support	Academic Barriers	Fatigue
	Direct Impact	Reading and Writing
	Indirect Impact	
	Unpredictable	
Barriers That Arise Studying at a Distance	Accessibility	Instructor Etiquette
	Isolation	Student Etiquette
	Relationships	Text-Based
Benefits Studying at a Distance	Family Balance	Work Balance
	Flexibility	
	Independence	
	Interaction with Peers	
	Schedule	

While the list was considered to be a fair representation of the data, the researcher was concerned that this theme-based list might not capture the richness of themes available. Because the provision of a rich, thick description (Merriam, 1998) is an important element of case study research, the researcher felt it was imperative to use a second family of codes. As well, in the analysis of qualitative data, it is important to "set aside our prejudgements, biases, and preconceived ideas about things" (Moustakas, 1994, p. 85). To reduce the possibility of focusing on certain topics, the researcher chose to apply the categorization strategy outlined by Bogdan and Biklen (1998), which involves a set of 10 coding families, as outlined below.

1. *Setting and Context* provides general information related to the setting or topic and places the study in a larger context.
2. *Definition of the Situation* is associated with how the subjects define the setting. It relates to their world view, how they see themselves with respect to the topic and what is important to them.
3. *Perspectives Held by Subjects* relates to the shared rules or norms of the participants or their general point of view.
4. *Subjects' Ways of Thinking about People and Objects* is the code family for the subjects' understanding of each other, outsiders, and relevant objects.
5. *Process* codes are used when a researcher has viewed the group over time and "can perceive change occurring in a sequence of at least two parts" (p. 174).
6. *Activity* codes reflect regularly occurring kinds of behaviour.
7. *Event* codes refer to "happenings that occur infrequently or only once" (p. 175).

8. *Strategy* codes reflect the way people accomplish various tasks, such as negotiating conflicting demands or getting things they want.
9. *Relationship and Social Structure* represents codes that represent the social structure, which is a combination of the "regular patterns of behaviour among people not officially defined by the organizational chart … [and] … more formally defined relations, what social scientists refer to as social roles" (p. 176). Finally,
10. *Methods* codes are used for material related to the research procedures and processes.

From this family of categories, four were excluded in the analysis of the interview data. As this study represents data from a single point in time, the *Process* category was not used. Second, upon completion of the analysis, very few codes associated with either the *Setting/Context* or the *Event* categories were found, all of which were covered by other codes in the analysis, so these two categories were eliminated from the list. Finally, the Methods category was not used as the procedures of the study were not a significant component to the analysis of the data. The resulting six code families were used to further analyze the interview: Perspective; Ways of Thinking about People/Objects; Relationships; Strategy; Activity; and Situations.

The truncated list of 31 codes was divided among the six remaining categories. Four additional codes (Labels, Own Coping Mechanisms, Study Methods, and Instructional Design) based on the coding families were added to the 31 original codes. The data were analyzed with this list of 35 codes, using each sentence as the unit of analysis. The analysis was completed manually (as opposed to using software). The final review of the data resulted

in the elimination of 13 codes either because there was an insignificant amount of data (i.e. only one or two uses of the codes among all the interviews) or because overlapping codes were merged into a single code. The following definitions of the codes was used for the analysis.

1. *Perspectives.* The first code, *Flexible*, represents the flexibility of distance delivery and the ability of a participant to adjust elements of their studies, such as a modification to course delivery, to accommodate other elements of their life. The second code, related to *Flexible*, is *Schedule*, which is specific to the ability of the participant to adjust a time-based element of their studies to their lifestyle, such as being able to study at night rather than attending classes during the day. The next two codes, *Positive History* and *Negative History*, represent data related to positive and negative educational experiences the participant has encountered. The final two codes, *Previous Support* and *No Previous Support*, were used to identify the participant's previous experience with support services and accommodations. Previous was defined as experience that occurred prior to their association with the CDE.
2. *Ways of Thinking*. There were three codes in this category: *Technology*; *Attitudes of Others*; and *Labels*. The *Technology* code encompassed all data related to the use of technology, both assistive technology and non-assistive devices, such as computers. The second, *Attitudes of Others*, represents comments made by the participants about how they were perceived by others. Finally, *Labels* was used to code data when a participant mentioned a label or name that had been applied to themselves by others.

3. *Relationships*. The first code, *Family Balance*, represented data in which the participant mentioned their family and the need to balance family commitments with school obligations. Second, *Peers* was used to code data related to other students, particularly their interaction with their peers. Finally, the *Instructors* code represents any reference to a member of the instructional staff, which could include teachers, administration such as a principal, and tutors.
4. *Strategy*. This category included the following four codes. *Own Coping Mechanism* represented any data associated with strategies employed by the participant to independently overcome barriers associated with the disability. *Support Other Sources* was used to group data related to the participant's use of any support, either formal or informal, that was provided by someone not associated with Athabasca University. The third code, *Study Methods*, was specific to study strategies employed by the participant. Finally, *Disclosure* referred to any comment made by the participant related to disclosure or non-disclosure of the disability to the institution.
5. *Activity*. The first code, *Instructional Design*, related to course materials, delivery mechanisms and course design. *Interactivity* was used to code all data representing interaction between the participant and other members of the course (i.e. instructional staff and peers). The third code, *Use of Support*, represented any support service or accommodation used by the participant.
6. *Situations*. The first code, *Impact of Disability*, defined any data related to how the disability effected the participant, both with their studies and their personal lives. The second code, *Do Not Need Support*, represented the situation when the

participant did not require formal assistance from the institution. Finally, *Unpredictable,* the third code, symbolizes the unpredictability of the disability and the challenges associated with the irregular impact of the disability.

Strategies for Validating Findings

According to Backstrom and Hursh-César (1981), "research is valid if it measures what it is supposed to measure – if we learn what we want to learn" (p. 34). In conducting case study research, Merriam (1998) recommends strategies to address both internal and external validity as well as the study's reliability. To address internal validity, this study used triangulation by collecting data through multiple methods, (using the survey and through the e-mail interviews). As well, the researcher's assumptions and biases were clarified in Chapter I. There are limitations related to external validity as the case focuses on graduate students studying at a distance. By providing a "rich, thick description" (p. 211), the reader can extrapolate the findings and determine whether or not the findings can be applied in other situations .

CHAPTER IV

RESULTS AND DISCUSSION

The purpose of this study was to explore the experience with disability-specific support of distance learners with disabilities, specifically graduate students. This chapter presents the findings of this study, beginning with results from the questionnaire, and followed by a presentation of the interviews. The discussion of these results occurs throughout the chapter.

Questionnaire Results

Response Rate

Of the 886 students and graduates invited to respond, 14 completed questionnaires were received. One partially completed questionnaire was submitted by a non-disabled individual and subsequently discarded and excluded from the analysis. It is unknown how many of the 886 potential respondents had a disability. Considering the frequency of students with disabilities in distance education institutions, which ranges from 3% to 5% (Moisey, 2004; Fichten et al., 2003), the response rate is in the range of 32% to 52%, which is typical of questionnaires of this type.

Demographic Characteristics

The first part of the questionnaire asked respondents to provide demographic information. Table 4 presents a summary of these data. The respondents were predominantly female (10 respondents or 71.4%). This gender distribution is similar to the institution's total student population, which was approximately two-thirds female during the 2004-2005 academic year (Athabasca University, 2008).

While female respondents' age range covered all categories except "Younger than 25," the men were older (three were aged 50-54 and one was older than 54). Although an average

age could not be calculated because respondents indicated an age range, the majority (64.3%) were 40 years of age or older. This suggests a somewhat older population than the institution's overall student population. During the 2004-2005 academic year, the average age was 29 years with 44% of the student population under the age of 25 (Athabasca University, 2008). A younger student population was found in previous literature as well, which focused either on undergraduates specifically, or the entire university's population. For example, the majority (80%) of students in Moisey's (2004) study were under the age of 41 years. Similar results were presented in Horn and Berktold (1999) who reported that 77% of students with disabilities were under the age of 40.

The age distribution of the respondents might be a reflection of the increase with age in the rate of disability among Canada's general population. The "gradual increase is reflected in a rate of about 4% among young adults 15 to 24 years of age, compared to 7.1% among persons aged 25 to 44 and 16.7% among those aged 45 to 64" (Cossette & Duclos, 2001, p. 8). In this study, 0% were aged 15 to 24 years, 43% were in the 25 to 44 years range, and respondents 45 years and older represented 57% of the group.

With respect to marital status, 11 (78.5%) respondents were married or in common-law relationships. The other three respondents were single, widowed, and divorced, respectively. Slightly more than half had dependents (one had one dependent, four had two dependents, two had three dependents, and one had four or more dependents).

Table 4

Demographic Characteristics of Respondents

Item	n	%
Age		
Younger than 25 years	0	–
25-29	2	14.3
30-34	1	7.1
35-39	2	14.3
40-44	1	7.1
45-49	1	7.1
50-54	5	35.7
Older than 54	2	14.3
Male	4	28.6
Female	10	71.4
Marital Status		
Single	1	7.1
Married or Common-Law	11	78.6
Widowed	1	7.1
Divorced	1	7.1
Number of Dependents		
0	6	42.9
1	1	7.1
2	4	28.6
3	2	14.3
4 or more	1	7.1
Employment Status		
Full-time employment	7	50.0
Part-time employment	6	42.9
Not employed	1	7.1
Location of Residence		
In Alberta	3	21.4
In Canada	11	78.6
In North America	0	–
In another part of the world	0	–

All respondents resided in Canada, the majority (78.5%) living outside Alberta. Seven respondents were currently enrolled in one CDE course; seven respondents were not taking courses. The majority (92.8%) were employed (six part-time and seven full-time). The full-time employment rate among the institution's student population was 60% in 2004-2005; the part -time rate was not reported (Athabasca University, 2008). It is interesting that while the respondents were generally older than the institution's average, the full-time employment rate was similar.

Disability Type

The most prevalent disability was a physical condition. Specifically, five respondents had a chronic illness and one had a mobility limitation. Two respondents had hearing impairments and four respondents had learning disabilities. The remaining two respondents selected the category, Other, to describe their condition; one person had diplopia (commonly known as double vision) and selective hearing, and the other person had narcolepsy. No respondents reported having a psychological disorder or a visual impairment.

The distribution of disability types differs from the distribution reported in other studies (e.g. Hill, 1992; Moisey, 2004; Henderson, 1995; Horn & Berktold, 1999; Lewis & Farris, 1999), which is summarized in Table 2. The most prevalent disability type among the respondents was a chronic illness (35.7%), whereas the most prevalent type in previous reports was either a physical limitation (Hill, 1992; Moisey, 2004) or a learning disability (Henderson, 1995; Horn & Berktold, 1999; Lewis & Farris, 1999). Of interest was that no one in this study reported having a psychological disorder, whereas this type of disability represented 19.7% of the students in Moisey's (2004) study. Also of interest was that no

respondents had a visual impairment, unlike previous reports that found more than 10 percent of students had this type of disability (Hill, 1992; Henderson, 1995; Horn & Berktold, 1999).

The rate for learning disabilities (28.6%) is worth noting given it is more than double the rate for adults (defined as 15 years of age or older) with disabilities in Canada. Cossette and Duclos (2001) reported a rate of 13.2% for this population, which was lower than rates of mobility, pain, agility, hearing, visual, and psychological conditions.

Disclosure to the Institution

Of the 14 respondents, four had disclosed their disability to the institution. This group was comprised of one person with a mobility limitation, two people with a chronic illness, and one person with a hearing impairment. This rate (28.6%) appears low, considering a student cannot receive support services and accommodations without disclosing the disability. Because most research related to students with disabilities generally represents students who have disclosed their disability, it is unclear whether this low rate is significant. Additional comments related to disclosure are given in the following sections on use of support services.

Previous Support

Prior to entering their current program, five of the respondents (36%) had received support or accommodations. Two respondents (one with a learning disability, one with a mobility limitation) had received services at the post-secondary level only. One respondent, who had a chronic illness, had received support at both the elementary and secondary level but not at the post-secondary level. The fourth respondent had a learning disability and received support at the elementary level and at the post-secondary level. The fifth

respondent, who had selective hearing, did not indicate at what level the previous support had been received.

The types of prior support and accommodations received were extra time for homework, extra time for assignments, extra time for tests, assistive technology, reduced course load, and assistance with note taking. With respect to support services, two received extra tutoring, two used academic advising services, two received psycho-educational assessments, and one listed other services, including psychologist counseling and a disability manager. Table 5 shows the frequency of use for these accommodations and services.

Table 5

Types of Accommodation or Service Received

Support	n
Accommodation	
Extra Time to Complete Homework	1
Extra Time to Complete an Assignment	2
Extra Time on a Test	1
Use of Assistive Technology	3
Alternate Formats for Print Material	0
Reduced Course Load	2
Modified Course Requirements	0
Assistance with Note Taking	1
Other	0
Service	
Assistance from an Educational Assistant	0
Assistance from a Resource Teacher	0
Extra Tutoring	2
Personal Counselling	0
Academic Advising	2
Vocational Advising	0
Psycho-educational assessments	2
Other	1

It is interesting that one of the respondents, having received support at both the elementary and secondary levels, did not participate in support services at the post-secondary level. Concurrently, of the five respondents who received support, only three had received support at the post-secondary level. This participation rate (21.5% of all respondents) appears low considering previous research indicated much higher levels of participation in disability-specific support among undergraduates with disabilities. Moisey (2004), for example, found that 93% of undergraduates with disabilities received support from the institution's disability support office. One factor that might explain the inconsistency is that the students in Moisey's study were students who had disclosed their disability to the institution. In this study, only one of the five students who received previous support services had disclosed their disability to the institution. Concurrently, since the length of time the respondent has had the disabling condition was not established, it is unclear how many of the 14 required disability-specific support while at elementary or secondary school, or during previous post-secondary studies.

Use of Disability-Specific Support Services at the Institution

In order to understand better how graduate students with disabilities use available support services, three themes were addressed on the questionnaire. First, students were asked whether they had disclosed the disability to their institution, a requisite step if the student is to receive institution-based accommodations and services. As discussed previously, few respondents chose to disclose their disability to the institution. This question was followed by a group of questions related to their use of specific services. Had they received disability support services or accommodations from the institution? If so, what services had they received? If not, what were their reasons for not using these services? Finally, data were

obtained to determine whether informal support (i.e., other than the institutional disability-specific support services) support had been received. This section presents the results of these questions, including the surprising result that none of the 14 respondents had disability-specific support services from the university.

Use of Formal Support Services. When asked "As an Athabasca University student, have you received services from Access to Students with Disabilities?", all respondents answered, "No". This result was surprising, given the use of disability-related services at the undergraduate level. As mentioned, Moisey (2004) found that 93% of undergraduate students with disabilities used disability-specific services. Similarly, in a survey of post-secondary graduates with disabilities, Sharpe et al. (2005) found at least 83% had used one or more instructional accommodations as undergraduates. Concurrently, it was surprising since four of the respondents had disclosed their disability to the institution. Finally, it was particularly interesting that none of the five respondents who had used support services prior to studying at Athabasca University continued to use support services during their graduate studies.

Respondents were asked to identify reasons why they chose not to use services or accommodations. This question was answered by 13 of the 14 respondents. More than half (53.8%) indicated they did not need the accommodations while two respondents indicated they did not want to disclose their information. One respondent did not think it was fair, and seven (53.8%) respondents felt they received sufficient support from other sources (five of the seven had also selected "did not need the accommodations"). Four respondents specified other reasons, as follows:

- "Wear prism glasses; enjoy quiet learning environment"
- "Have already developed my own coping mechanisms"

• “Told no free accommodation would be provided”

• “Was not aware of service”

The decision not to use support services is not unique to graduate students with disabilities. Cain et al. (2003) studied the use of support services (all services, not disability-specific services) for graduate distance learners. In their case study of eight graduate students studying at a distance, the participants cited a lack of awareness of the availability of services and the lack of need for support. While Cain et al.’s research considered the general population of graduate distance learners, it is interesting that lack of awareness and lack of need were mentioned in their study and by respondents in this study.

Another factor that affects distance learners and their use of support services (again, all services, not just disability-specific support), is their acceptance of the need for support. Shin (2003) states that “without feeling comfortable in revealing the need for support, adult students, especially those who are at risk, are unlikely to get benefit from student support services” (p. 80). This level of comfort with seeking and using support systems might be tied to what Garland (1994) calls the adult need for “personal control.” For mature students, this is the result of a conflict “between the societally humble role of student, whose needs are considered relatively subordinate, and the societally honourable, autonomous role of mature adult, whose needs for respect, personal control, and fulfillment are considered paramount” (“A Relevant Cultural Theme in Distance Education: The Social Contradiction of Roles” section, para. 1). Garland explains that this need for personal control is challenged by bureaucratic procedures and the wish to be an independent learner.

Previous research indicates that testing accommodations are one of the most frequently used accommodations by students with disabilities (Tagayuna et al., 2005; Moisey, 2004). A

review of the course outlines of the 23 non-thesis courses offered by the CDE reveals that none of the courses uses examinations as part of the assessment strategy. Instead, assessment methods included projects, research papers, article critiques, presentations, group work, and case studies. With no testing accommodations required, the likelihood that a student would request support might be lower.

Informal Support. Although questionnaire respondents did not use formal disability-related supports, they received support from other sources. Three respondents (two of whom had disclosed their disability to the institution) indicated they had received support from a CDE faculty member or instructor.

Support was received by five respondents from non-disability support services offered by the institution. Services from the following departments were used: Advising Services (one respondent); Library Services (five respondents); Office of the Registrar (three respondents); and Prior Learning Assessment (two respondents). No respondents indicated that they had used Computing Services, Counseling Services, Course Materials Production, Learning Services, the Ombuds Office, the Students' Union or Write Site.

Given how no students used disability-specific support services, it is interesting that only three received support from an instructor or faculty member. In the Dowrick et al. (2005) study, faculty mentorship "was seen as a valuable resource, and for some students, a vital part of post-secondary education" (p. 44). This finding might be related to the respondents' perception that they did not need support. Additional evidence related to the perception of need was found in the interview data.

Interview Results

Of the 14 respondents who completed questionnaires, nine indicated a willingness to participate in an e-mail interview. Of these respondents, six actually participated in the interview process. Upon completion of the interviews, the content analysis described in Chapter III was completed, yielding multiple data for each of the 22 codes. The interpretation of this analysis was influenced by the finding from the questionnaire that none of the respondents had used disability-specific services. As such, the themes and discussion presented in this section focus on non-participation in formal services.

To begin, a description of the six participants is given, including how they were affected by their disability and whether they disclosed their disability to the institution. This description is followed by the results of the content analysis. The remainder of the section focuses on important themes identified through this analysis. First, considering that none of the respondents used disability-specific services, the use of informal supports is examined. Next, the factors that influence the participants' choice not to use formal support are discussed. These factors include reasons cited by the participants as well as issues described in the literature review, such as disclosure concerns, past educational experience, and support from other sources. Of these factors, the most significant issue is the participants' need for support. Finally, this section concludes with one of the most significant factors in the choice not to use formal disability-specific services – the participants' ability to support themselves through the application of effective study methods and coping mechanisms.

Participants

The purpose of this research was to explore the use of support services and accommodations by graduate students with disabilities studying at a distance. Throughout this section, the six participants are identified as P1, P2, …, P6. This identification is used to

give context to comments from this diverse group of participants whose experience might vary, depending on the disabling condition. It is important to remember that, as Dowrick et al. (2005) warn, “post-secondary support service providers should focus on each individual’s needs rather than on a formula according to the individual’s disability” (p. 44). It cannot be assumed that the experience of one of these participants would be the same for any other person with the same disability. The identifiers P1, P2, … , P6 were used instead of pseudonyms because gender data was not gathered for the six participants and the use of pseudonyms might lead to gender bias or an inaccurate representation of the person’s gender.

P1. This participant had Systemic Lupus and has been affected by this condition at least since high school. During high school and throughout undergraduate studies, P1 had a reduced course load, which was vital because this participant was “very fatigued and my joints were always sore”. In general, P1 received much support from teachers during studies towards a BA, citing their “understanding and willingness to extend due dates … the most helpful”. This flexibility was particularly valuable as the condition is highly unpredictable. For example, P1 found that “ the disease can be frustrating because when I am doing well nothing can stop me and I can go for days, when I am unwell it can delay my progress.”

P2. This participant has dyslexia and did not receive support during high school or as an undergraduate. During the completion of P2’s second degree, “I sometimes asked if I could write some of my exams on a laptop computer and a few times that was allowed”. As a result of the condition, reading takes much longer and “… writing with a pen/pencil is extremely laborious and messy.”

P3. Upon completion of a baccalaureate degree, P3 was diagnosed with narcolepsy. P3 describes the fatigue felt as a result of the condition, “The best way I can describe it is that

even when I've gotten a full night's sleep (which is most of the time!) the next day I can still feel like I haven't rested at all, like I've been up for 2 days straight." As a result, "it can be challenging to stay focused … when my body is telling me I need a nap. Even if I do manage to stay awake, I'm concentrating on fighting the drowsiness.". Because the condition was diagnosed after the completion of undergraduate studies, no support was received previously.

P4. This participant has multiple sclerosis and was diagnosed with the condition after previous studies were completed. The two greatest challenges facing P4 are fatigue and the unpredictability of the condition. As a result, "I could be comfortably taking a course, then half-way through, have a relapse that might involve hospitalization." As well, P4 noted some limitations because of the use of a wheelchair. P4 did not receive any previous support.

P5. The hearing impairment that P5 has is degenerative and "was not an issue in my teens and early 20-30s." As such, no previous support was received. P5's learning can be impacted by the audio quality in face-to-face environments, particularly if there are echoes or extraneous noise. The use of mediated environments for synchronous communication can be challenging, although the use of supporting documents to supplement the audio portions is an effective accommodation.

P6. In school, P6 was tested repeatedly for a learning disability, which has never been formally diagnosed. At that time, however, "little was known about learning disabilities … and they were unable to define the problem." The learning disability is still undefined and impacts P6's spelling, writing, and, what P6 describes as "disorganized thought patterns". For example, "some days I cannot spell even simple words like "house" and even after typing the word it doesn't look correct to me." Although several teachers sent P6 for testing, both high school and a Bachelor of Education were completed without accommodations.

Content Analysis

The process used to code the interview data was described in Chapter III. The set of 22 codes was used to analyze the themes discussed in the e-mail interview (i.e., past experience, the impact of the disability, demographics, type of disability, use of formal disability-specific support systems, previous experience with support services, and disclosure of the disability).

Table 6 summarizes the distribution of codes used in the analysis of the e-mail messages. The most common category was Situations (22%), with three other categories representing approximately 20% of the data: Perspectives (20%); Strategy (19%); and Activity (18%). Participants discussed topics related to Ways of Thinking (11%) and Relationships (10%) about half as often as the other topics. Although Relationships (10%) was the least prevalent category, one of its codes, Instructors (8%), was the third highest code, behind Impact of Disability (13%) and Instructional Design (9%).

The list of codes was based on the themes used to develop the research instruments as well as the family of code categories presented in Bogdan and Biklen (1998). Upon completion of the coding process, the researcher reflected on the research questions, the research instrument themes, and the Bogdan and Biklen categories. Common themes, ideas, concerns, and issues raised by the participants as well as any special concerns or interests raised by individuals were considered.

Table 6

Frequency of Codes in Interview Analysis by Category

Code	n	% Of code category	% Of all codes
Perspective			20.0
Flexible	5	13.9	2.8
Schedule	12	33.3	6.7
Positive History	3	8.3	1.7
Negative History	7	19.4	3.9
Previous Support	5	13.9	2.8
No Previous Support	4	11.1	2.2
Ways of Thinking about People/Objects			11.1
Technology	6	30.0	3.3
Attitudes of Others	7	35.0	3.9
Labels	7	35.0	3.9
Relationships			10.0
Family Balance	2	11.1	1.1
Peers	2	11.1	1.1
Instructors	14	77.8	7.8
Strategy			18.9
Own Coping Mechanism	13	38.2	7.2
Support from Other Sources	3	8.8	1.7
Study Methods	10	29.4	5.6
Disclosure	8	23.5	4.4
Activity			18.3
Instructional Design	17	51.5	9.4
Interactivity	3	9.1	1.7
Use of Support	13	39.4	7.2
Situations			21.7
Impact of Disability	23	59.0	12.8
Do No Need Support	8	20.5	4.4
Unpredictable	8	20.5	4.4

The result of this reflection was the emergence of four themes:

a) sources of support not provided formally by the institution;
b) non-participation in support services;
c) the need for support; and
d) the participants' self-reliance to overcome barriers stemming from their disability.

The remainder of this chapter presents results for these themes and the associated discussion.

The Use of Informal Support

Considering that no formal support was received, the second surprising finding was that very little informal support was used. Three codes, representing 12% of the discussion, related to informal support: Support from Other Sources; Technology; and Use of Support. Of the six participants, only two mentioned support received from other sources. For P1, it was "because of the principal's belief and support that I was given the benefit of the doubt." This experience is similar to Dowrick et al.'s (2005) finding that students repeatedly mentioned the value of an individual staff member who offered support and guidance. In P6's case, support came from outside the institution. This participant had much difficulty typing papers, "I almost dropped out because of the requirement to type papers. After spending 5 hours typing a paper…it would still be full of spelling errors (most of which I couldn't identify)". Eventually, this participant hired someone else to type the papers. With improved personal computing technology, P6 replaced this support with the use of the spell check feature.

P6 found that "the most amazing support…was the invention of the computer". Technology-based support solutions were also valuable to P2 and P5. For P2, "the ability to

use a laptop whenever feasible" was the most helpful support. For P5, assistive technology, specifically audio boost for headphones and the telephone helped reduce the impact of P5's hearing disability. Another important accommodation for P5 was "access to supporting materials or documents to supplement the audio portions".

While technology-based accommodations helped these three participants, P4 requested an accommodation from the professor. This participant had disclosed the disability to the institution, yet the participant had to convince the professor an accommodation was appropriate, as shown the quote below:

> I needed an extension on a paper … and had to go through a fairly rigorous process to explain to the prof that I have MS and that I needed extra time. It would have been so much easier if the prof could see for himself on my records that AU already knew of my illness. (P4)

P1 also mentioned the use of extensions on assignments and a reduced course load, although it was with reference to high school, rather than with the CDE. P3 made no mention of the use of support.

For five of the participants, the support they listed are typical accommodations that can be arranged by disability services (Graham-Smith & Lafayette, 2004). It is interesting that these participants did not seek formal disability-specific services. For P2 and P6, it might have been unnecessary if using a computer without any assistive technology sufficiently met their needs. For P5, assistance with obtaining assistive technology was unnecessary: "I have all the accommodations for participation on my end" (P5). In P4's case, while intervention by the ASD might have removed the need to convince the professor that the accommodation was necessary, the fact that ASD was not used suggests that P4 was able to self-advocate

sufficiently to receive the necessary accommodation. Finally, while P1 mentioned historical support, this participant had not had the need for these services during graduate studies. These ideas provide some explanation of non-participation by this group. There are, however, several factors that influence the decision not to participate, which are explored in the following section.

Use of Services

In the interview, participants were asked "*Have you used services through ASD? Why or why not*". The participants all replied that they had not and gave the following reasons.

- "No, because there has not been the need." (P1)
- "No. I usually make my own accommodations or put in place my own support mechanisms." (P2)
- "No. I didn't realize there was such a service." (P3)
- "No - because I wasn't aware ASD existed." (P4)
- "No. I did not self-identify or ask for assistance." (P5)
- "No, because there is not much they can do to help me." (P6)

From the participants' answers, three important reasons are revealed:

- the lack of awareness about the support system;
- that supports and accommodations from this office were unnecessary; and
- the perception that the services available would not meet the participant's needs.

The choice not to use services was influenced by other issues, specifically, negative attitudes of staff, teachers or faculty toward the participant, past experiences with support, and the

decision not to disclose the disability to the institution. Similar themes were revealed in the literature review. Non-disclosure, in particular, was linked directly to both the participants' perception that the services were unnecessary and that the services did not match the participants' needs. Almost half (46%) of the codes generated in the analysis were related to non-participation. This section examines each of these factors.

Lack of Awareness. When asked about non-participation, two of the six participants stated explicitly that they were unaware that support was available. This lack of awareness might be associated with their academic stage at the time of diagnosis. P3 was not diagnosed with narcolepsy until after the completion of undergraduate studies and did not use support services prior to diagnosis "because I wasn't aware that I had any kind of condition." Similarly, P4 had not been "in an academic learning setting since I became disabled." As discussed in the literature review, the onus is on post-secondary students with disabilities to seek support from the institution whereas elementary and secondary schools are required to locate and serve students with disabilities. As these students were diagnosed after secondary school, it is possible they did not receive information about disability services.

Lack of awareness of support is not limited to graduate students with disabilities. Cain et al. (2003) found that graduate students studying at a distance, in general, were unaware of support services. In their case study of eight graduate students, "five [64%] were not aware that such services existed or felt they did not need such services" (pp. 47-48). Not knowing about available services might be the result of low transactional presence, which is defined as "the degree to which a distance student senses the availability of, and connectedness with, each partner [teacher, peer student, and institution]" (Shin, 2001, p. iii). Institutional transactional presence, which is the perceived interface with support services, has a more

substantial influence on student learning in a distance environment than in a face-to-face environment. To benefit from these services, however, a distance learner "must go through the cognitive interface first, before actually tapping into these services" (p. 160). If students are unaware of services or have failed to develop a connection with the institution, "chances are they would feel reluctant to reveal their needs for support in spite of the seriousness of the task" (ibid). Low institutional presence might also impact the student's choice not to disclose the disability if a the necessary level of trust and confidence has not been established.

Past Experience with Support. If a participant had not been exposed to support services in earlier academic settings, it might explain why they did not use support offered at Athabasca University. P3, P4, and P5 were all diagnosed after completing previous academic work. It was expected that past exposure to a support system would result in the use of ASD services. This premise, however, did not hold true. Three participants had received support previously, none of whom used ASD support.

During both high school and undergraduate studies, P1 was allowed "to take fewer courses per semester in order to have a break mid-day. I was very fatigued and my joints were always sore, so rest was necessary". P2 was allowed occasionally to use a laptop to write exams during previous post-secondary studies. As indicated in the quote below, the only support P6 received was related to diagnosis.

> I was tested repeatedly in school but little was known about learning disabilities 40 years ago and they were unable to define the problem. Obviously teachers noticed an issue though as I was sent for testing by several different teachers over the years. (P6)

One explanation for non-use when support had been previously received relates to the nature of this earlier support. P1 required the ability to rest when necessary, an accommodation that could be more easily provided in a distance learning environment where the student could schedule tasks around the need to rest, rather than being tied to a schedule for face-to-face classroom-based learning. In the case of P2, there were no exams in the current program, so the accommodation to use a laptop during exams became unnecessary. Similarly, the support P6 previously received, which was related to diagnosis, was no longer required.

None of the participants had received previous support in the area of transition planning. When asked whether a transition plan had been created in high school, none of the participants indicated that they had ever received this important support service. A vital component of a transition plan is the identification of resources and support that might assist the student in the transition from secondary to post-secondary studies. Some of the participants (e.g., P3 and P4) did not receive assistance with transition planning in secondary school because they were unaware of their disability at that time or had not yet developed the disabling condition. Others, such as P2 and P6, attended high school before transition planning was a required element of support for students with disabilities. As a result, none of the participants were exposed to valuable information about the kind of support that is available, how to locate support services, and their rights to support and accommodation, all of which might have encouraged participants to participate in available support.

Attitudes of Others. It was thought that earlier negative experiences at school might affect the participant's decision to seek support or accommodations. Five (83%) of the participants described past events where they had been affected by the negative attitudes of

others. These occurrences included discrete incidents or a more general impression that participants had of others' attitudes towards them.

Despite the understanding of some of P1's high school teachers, others were very unsupportive, "I was told by my counsellors and my doctors that I would not finish a high school degree let alone attend university" (P1). P1 felt that their lack of faith had a negative impact. For P2, being placed "in 'remedial' classes … had the effect of branding me 'retarded' and my IQ is 132." The participant's appearance might also influence others' attitude. For example, P3 said, "I probably just looked lazy or bored". P6 also mentioned labels that are sometimes applied, "people with disabilities can be very nervous about appearing "different" or 'stupid'".

The lack of understanding can be frustrating for students. As P4 explained, "I needed an extension on a paper in my current course and had to go through a fairly rigorous process to explain to the prof that I have MS and that I needed extra time". It is interesting that this process was necessary considering P4 had disclosed the disability to the institution. As Eckes and Ochoa (2005) state, "Once the student's disability is documented, the post-secondary institution 'must reasonably accommodate' the student" (p. 9). In the quote below, P4 explained that despite disclosing the disability to the institution, the professor had not been informed.

> It would be helpful if a student with a disability has a "flag" on their file so profs know ahead of time that they are teaching someone who may need assistance. … It would have been so much easier if the prof could see for himself on my records that Athabasca University already knew of my illness.

This occurrence is similar to events described in Johnson (2006), where some faculty questioned the nature of reasonable accommodations or whether a student genuinely needed support. P4 had to use strong self-advocacy skills to receive an accommodation. The institution might choose not to reveal the disability to instructors for privacy reasons; however, if that was the case, it appears that P4 was not informed of this policy.

Sometimes, in its effort to help one group of students, the institution negatively affects other students. This was the case for P6. In an attempt to identify and assist students with poor literacy skills, the institution required students to complete a basic English literacy test, including students like P6, who had a good standing in an English course. As a result of a learning disability, P6 "had a great deal of difficulty writing by hand (no computer or spell checkers at that time) in the short period of time allotted." As a result, P6 failed the test and was required to take a basic literacy course. When P6 challenged the decision, "…it was suggested by officials at ___ that I might 'have had other people write my papers for me'". In the quote below, P6 explains the impact this accusation had.

> I was really hurt by the suggestion that I was cheating and then to be forced to take a course that was not in the least helpful. The course was mainly Jr. High grammar. I knew it would not help me … because I knew I had a disability of some sort.

P6 "found the experience demeaning and insulting".

These negative experiences might contribute greatly to a participant's choice not to request formal disability-specific support services. Being accused of cheating, being labelled "retarded", stupid, or lazy, or having to justify a request for assistance are discouraging events. The impact of these incidents might be sufficiently disheartening that students choose to avoid disclosure of the disability or participation in support services. Dowrick et al. (2005)

concluded that “negative attitudes and lack of awareness of disability needs and accommodations are still major barriers to success for students with disabilities” (p. 46). In their study of quality disability support, Graham-Smith and Lafayette (2004) found “overwhelmingly, the criteria of having ‘caring people’ in a disability support office” (Discussion section, para. 1) was the most valuable aspect of disability support, which was not demonstrated by the above situations.

Non-Disclosure. Of the six participants, only P4 had disclosed the disability to the institution. This person had a chronic illness and indicated that the reason for disclosure was “because I felt it was important for my profs to know in case I did have health problems while taking a course.” As discussed in the previous section, disclosure to the institution did not easily facilitate a request for an extension.

For the remaining participants, the choice not to disclose their disability was made for a variety of reasons. Neither P1 nor P3 perceived their condition as a disability.

- “I have never thought of having Lupus as a disability. I think of it as an annoyance which I must always deal with.” (P1)
- “Another [reason for non-disclosure] is because I guess I don’t really think of myself as having a disability. I have a condition, but it doesn’t define me. We all have things to deal with.” (P3)

Another reason why participants did not disclose their disability was that they felt they had no need for assistance, either because they had developed their own coping mechanism (P1, P5, P6), they had not needed it previously (P1, P3), or they did not believe there was any assistance available (P3, P6). The decision not to disclose their disability was related to others’ perception of the condition for P3, “I tend not to mention it to people because it’s

kind of misunderstood. People don't always get what the big deal is with feeling tired". Finally, for P2, who did not disclose the disability, there was no special reason, "I didn't make a special case for it and I didn't ask for special consideration, but neither did I try to hide it".

Many factors affect students' decision to reveal their disability. The decision not to disclose, however, means that students have no access to disability-specific support services. Although these participants indicated they had no need for support, there are benefits to disclosure beyond obtaining accommodations (Lynch & Gussel, 1996). For example, disclosure can lead to "opportunities to participate in and be successful at activities that the student may have previously avoided are enhanced when the instructor and student work together on accommodations" (p. 353). It is possible that there are services available to students to which they will receive no exposure because they did not disclose the disability or perceive a need for such supports.

The Need for Support

The challenge for educators is to ensure there is a direct relationship between what learners need and the support available. As discussed in the literature review, there are a variety of reasons why support might not meet learners' needs, such as funding issues, inadequate means to deliver the services, and lack of training and knowledge of support personnel. Of these concerns, however, perhaps the most significant is the lack of information about the needs of distance learners with disabilities, particularly graduate students. This section discusses the support needs of the six participants involved in the e-mail interviews. They are a diverse group yet they share many similarities in terms of their need for and expectations of support.

The Impact of the Disability. To be successful learners, participants needed to compensate for the barriers that arose from the impact of their disability. The Participant section of this chapter provided some general information about the impact of the disability on each interviewee. This section expands on that information, focusing on the academic impact of the disability. Although the participants comprised a diverse group, they shared common challenges: the unpredictability of the condition; the effect of the disability on reading and writing; and the physical impact of the condition.

Unpredictability of the Condition. For four of the participants, one of the greatest challenges was the unpredictability of their condition. P1 stated, "I could never predict when I might be too ill to work". Similarly, P4 "struggled with the unpredictability of the disease". In P4's case, depending on the severity of the relapse, hospitalization might be required, which would severely impact coursework. P3 described how "people with narcolepsy have sudden 'sleep attacks' where there is a strong urge to sleep". This arbitrary need to sleep greatly limited concentration, particularly in lectures. Finally, for P6, the inconsistency of the condition meant that sometimes there was little to no impact and a far more severe effect on other days, as shown in the quote below.

> My disability is currently undefined so I will have to explain through description. One area is spelling. Some days I cannot spell even simple words like "house" and even after typing the word … it doesn't look correct to me. (P6)

The variability of the effect on these participants presents many challenges, particularly for managing school work, scheduling tasks, and completing assignments.

Effect on Reading and Writing. For the two participants with a learning disability, reading and writing were challenging at times. For example, P6 sometimes found it difficult

to focus on reading and compensated by reading out loud. Concurrently, this participant experienced “difficulty writing by hand”. P2 also found writing “extremely laborious and messy” and mentioned that “it takes me much longer to read chapters”. Challenges associated with reading also affected P3, who had narcolepsy. For this participant, the process of reading was not an issue; rather the challenge was trying to “focus on the information instead of how tired I feel” (P3).

Physical Challenges. The three participants with a chronic illness all discussed the challenges associated with the physical impact of the disability; the participant with the hearing impairment (P5) also mentioned barriers stemming from audio quality. P1 was “very fatigued and my joints were always sore, so rest was necessary”. The physical impact of P1’s condition limited the course load, requiring P1 to take extra time to complete the high school and undergraduate studies. Similarly, both P3 and P4 mentioned the fatigue associated with their condition. P4, cited fatigue as the “greatest difficulty I have to face with my MS…I get tired very quickly”.

P5, who had a hearing impairment, found that materials were often inaccessible: “I have particular problems with information that is [face to face] only when there is limited organization of materials or identified resources for follow up”. This participant also mentioned that “audio quality of the environment has been a huge issue – echoes, extraneous noise that interferes with sound quality, lack of visual connection with speaker for lip-reading to support auditory cues”.

Essential Services and Accommodations. Although there was variability in how individuals were affected by their disability, the following common themes emerged regarding what participants needed for academic success:

- flexibility;
- effective course design and delivery;
- interaction with peers and instructors; and
- instructor's awareness of the issues facing students with disabilities.

As discussed previously in the Support section, the use of informal support, the use of technology was also an invaluable tool to help participants overcome barriers associated with their disability.

Flexibility. The participants frequently cited the importance of flexibility, particularly with respect to scheduling, in achieving success. Statements, such as those listed below, illustrated the role that flexible deadlines and extensions played in their studies. The overall flexibility of distance delivery was also noted.

- "...sometimes during difficult periods I needed to get extensions on my assignments…" (P1)
- "... I don't have the luxury of spending a lot of time on my studies. I'm fitting it in after work and on weekends, and on holidays." (P3)
- "...I needed an extension on a paper..." (P4)
- "I can work at my own pace. The assignments are posted at the beginning of the course so I can start to work on them any time I want and take as long as I need to write any particular paper." (P6)

Receiving extensions and setting the pace for learning were helpful to these participants. Given the unpredictability of their condition, having control over when and where they studied made a significant contribution toward academic success.

The flexibility of the distance environment helped learners handle their studies while managing other commitments. P1 appreciated the fact that "I can work at night after the children are asleep. I could work if I needed to and still study". Similarly, P3 appreciated the ability to balance "my education with full-time work, husband and family".

Course Design and Delivery. The design of the courses and their delivery were important factors for success. The value of specific elements differed among participants. When asked to identify the greatest barrier related to studying at a distance, two participants identified the use of text-based media.

- "It has a tendency to be even more limited to only the written word." (P2)
- "Probably the amount of text reading" (P6)

This barrier, however, was considered a benefit for another participant.

- "This environment really suits my disability with the heavy use of text-based and/or visual content." (P5)

The asynchronous environment was valuable to P3, who felt that

> when I start to feel drowsy, it's nice not to be put on the spot with a question. I can think and reflect on my answers, and then come back when I'm feeling more alert and actually post my thoughts.

Other elements of instructional delivery that were important to participants included "access to supporting materials or documents to supplement the audio portions" (P5) and that "there are no exams so I don't have the pressure of producing a paper in 2 hours … organized and spelled correctly" (P6). Course design and delivery benefit students or pose a barrier. Unfortunately, the dearth of information about distance learners with disabilities and their needs for accommodations and modifications in the distance environment (Cook & Gladhart,

2002; Kinash & Crichton, 2007) makes it difficult for institutions to ensure effective instructional and support systems.

Interaction. The opportunity for interaction with peers and with the instructor was raised by three participants. P1felt that a "barrier is not being able to communicate face to face with my professors and classmates." As the quote below suggests, P6 saw the "lack of informal peer interaction" as a concern.

> Often talking to others informally about a reading would help me to understand it better. The discussions online are different from classroom discussions in that people are more careful about what they post. It is actually more intimidating to ask questions in online discussion groups as well because if it is a silly question, it is up there for all to see for the entire course.

The necessity of text-based interaction was not considered a barrier by one participant who noted that computer-mediated communication was valuable in accommodating "my learning style and hearing disability" (P5).

The lack of informal interaction can be problematic as it "can help ease the social isolation and advance the academic and career goals of students with disabilities by connecting them to a community of peers who support each other" (Burgstahler, 1997, "Summary" section, para. 1). In the distance education environment, this community can enhance students' sense of belonging and enhance the development of skills related to collaborative and co-operative tasks (Kennedy & Duffy, 2004; Anderson, 2003). The lack of interaction is also a concern because "students with disabilities who discontinue their education often report that reasons include a lack of social support within the university environment" (Johnson, 2006, "Student services" section, para. 2).

Instructor Awareness. All six participants mentioned the influence of the instructor on their learning experience, how the negative attitudes of instructors were detrimental and indicated a lack of awareness about the needs of students with disabilities. P6 described how one professor docked "marks if there were more than two words with white-out on a page." Such practices can unfairly penalize a student with a mobility limitation or learning disability. In describing their choice of language, P2 "noticed that at this level many authors and professors are pompous, pretentious and verbose", a writing style that can easily frustrate learners with reading difficulties. P5 emphasized that it was "helpful for me for the instructor or facilitator to be organized".

For many participants, however, the flexibility instructors showed by providing extensions, believing in the student's abilities, and being "aware of my illness and [being] very cooperative" (P1) was an invaluable form of support. In a distance environment, where graduate students saw their professors as a primary source of academic support and expected their instructors to "have knowledge of campus support resources" (Cain et al., 2003, p. 52), instructor awareness of the needs of students with disabilities and knowledge of available support services is critical. Unfortunately, faculty members rarely receive training related to supporting this student population (Maddux, 2004; Coombs, 1998).

Self-Support

Coping Mechanisms and Study Strategies. As noted previously, the questionnaire revealed the result that none of the 14 respondents used formal support services. This finding, coupled with the analysis of the interviews, revealed a significant trend – rather than using formal support provided by the institution, participants were able to support themselves through the development of personal coping mechanisms and the application of effective

study strategies. Moreover, their ability to self-support was facilitated by the distance environment, which provided students with the opportunity to participate fully in graduate studies.

Distance learners tend to be "different from their on-campus counterparts … more independent and autonomous learners" (Thompson, 1989, p. 43). This level of autonomy appeared evident among the participants, who employed various coping mechanisms to manage the impact of their disability as well as study strategies to overcome barriers they encountered. This attribute might also be related to their participation in graduate studies, where students are expected to work with a higher level of independence.

As discussed earlier, technology-based solutions provided a critical support for some participants. Both P2 and P5 cited technology as a reason for not disclosing their disability due to their ability to provide to self-support.

- "I usually make my own accommodation or put in place my own support mechanisms." (P2)
- "I have all the accommodations for participation on my end." (P5)

P6 noted "I have coping mechanisms in place already," and many of these strategies involved computer technology.

Three of the participants described study methods that compensated for the effect of their disability. P2 emphasized understanding concepts rather than memorizing data. P6 found "if I read out loud to myself, it helps me to keep focus". For P5, receiving materials in advance was important because "I could read through and organize myself – read up on unfamiliar topics to avoid missing out on explanations which happen at a quicker pace in the

real-time world". Finally, P1commented that by being "aware of my limitations physically and mentally…I have always managed to do what I need".

The use of effective learning strategies is one of the most important factors in academic achievement (Lerner, 2000). Finding independent solutions is an important skill for all post-secondary students with a disability, who are "charged with the bulk of the responsibility for initiating, designing, and ensuring their own educational accommodations" (Stodden et al., 2001, p. 190). Similar to the participants involved in this study, Sharpe et al. (2005) found that many (66%) post-secondary students with disabilities provide their own accommodations without professional support.

Location Flexibility. The decision to pursue a degree at a distance was an important choice for some participants because of the location flexibility it provided. For P4 and P6, location flexibility was a critical factor in their decision to return to school.

- "DE has allowed me to continue my education as, being in a wheelchair, I do not have the ability to attend a classroom setting." (P4)
- "I live in a rural area and would never have gone back to university without the program offered through Athabasca University. I know there are programs in which you can go in evenings and summers but … this program just provides far more flexibility." (P6)

The elimination of the need to attend classes was also valuable for P1 and P3. One of the self-support strategies of P1 emphasised schedule flexibility, "…if I need a rest I can take my laptop to bed with me and I can study from bed if need be". P3 also found the scheduling flexibility available at a distance very useful, "I can take a 20 minute nap if I need to and then come back to the work".

Distance Education's Contribution to Self-Support. Participants were asked "*As a student with a disability, what is the greatest barrier related to studying at a distance?*" and "*What are the benefits of studying at a distance for you?*". Analysis of the interview data revealed that mediated delivery created some challenges, depending on how the disability affected the learner. For participants in this study, however, the distance education environment enabled them to effectively manage their learning and minimize the impact of their disability.

Barriers When Studying at a Distance. Each participant shared challenges they encountered learning at a distance. While three of the themes – lack of interaction, amount of text-based work, and mediated communication – were associated with course design and delivery, the fourth topic was related directly to the disability.

The first issue raised was the lack of informal interaction. P1 expressed concerns about "the lack of social interaction and I feel that the biggest barrier is not being able to communicate face to face with my professors and classmates. I do not always feel connected". As the quote below shows, P6 recognized how important informal interaction was to success.

> Often talking to others informally about a reading would help me to understand it better. The discussions online are different from classroom discussions in that people are more careful about what they post. It is actually more intimidating to ask questions in online discussion groups as well because if it is a silly question, it is up there for all to see for the entire course. (P6)

For P6, it was not only the lack of informal communication but also the media used. Mediated communication was also a concern for P5, who noted the difficulty associated with

“Poor quality sound systems or mediated environments when chat is used. I miss so much that I need access to supporting materials or documents to supplement the audio portions”.

The heavy reliance on text-based course material was a challenge for two participants. P2 noted, “it has a tendency to be even more limited to only the written word (here… read these books then write these essays.” Although P6 did not expand on why it was an issue, this participant listed “the amount of text reading” as an impediment when asked about barriers associated with distance education.

Finally, two participants identified obstacles that might be problematic in both a distance and face-to-face environment. For P4, it was the fatigue and unpredictability of the disabling condition that was the greatest barrier. School-life balance was most significant to P3, who noted:

> I don’t have the luxury of spending a lot of time on my studies. I’m fitting it in after work and on weekends, and on holidays. These are all the same times when my [medication] is the least effective and I’m dealing with the worst of my narcolepsy. It can make it hard to get assignments and readings done. (P3)

The difficulties that arose because these participants chose to complete their studies at a distance are significant. Fortunately, the barriers were not sufficiently overwhelming to discourage these participants from enrolling and engaging in the graduate studies.

Benefits of Studying at a Distance. For several participants, there was much value to studying at a distance education.

- “In that way, distance ed has actually worked really well with my narcolepsy” (P3)

- “DE has allowed me to continue my education…I also appreciate the flexibility of DE” (P4)
- “This environment really suits my disability” (P5)

These statements reflect Paist’s (1995) perspective that distance education offers learners “what may be their last, best hope of access to education” (p. 61). Indeed one participant stated, “[I] would never have gone back to university without the program offered through Athabasca University” (P6). Repeatedly, throughout the interviews, participants cited the flexibility of studying at their own pace, where and when they wanted, and the opportunity to compensate for the unpredictability of their condition as the greatest benefits of studying at a distance.

Resiliency. The participants in this group were able to support themselves effectively through study strategies, coping mechanisms, and effectively integrating the benefits of distance study. There is another characteristic of these students worth considering, their resiliency, the ability to rebound after a challenge. P1, for example, was told “by my counselors and my doctors that I would not finish a high school degree let alone attend university”. P2 was “stuck in ‘remedial’ classes. But that had the effect of branding me ‘retarded’”. P6 was accused of having “had other people write my papers for me”. These examples demonstrate the indirect impact of the condition. Despite these challenges, this group has persisted and pursued graduate studies. They have shown a high level of resiliency despite the potential barriers that could have arisen from these negative past educational experiences.

Summary

The purpose of this research was to explore the experience with support services of graduate students with disabilities studying at a distance. A surprising finding was that none of the 14 questionnaire respondents used the formal disability-specific services provided by the institution. The most prevalent reason for not using these services was that they were unnecessary. Other reasons included a lack of awareness about the services, the preference not to disclose the disability to the institution, and the availability of support from other sources.

A sub-set of six of the respondents volunteered to participate in an e-mail interview designed to learn more about support services and accommodations, the benefits and barriers associated with studying at a distance, and the impact of their disability on their studies. Analysis of the interviews revealed that the most significant challenges were the result of the unpredictability of the disabling condition, the physical limitations the participants faced, and difficulties with reading and writing. Participants showed a high level of self-reliance and, through their own coping mechanisms and study strategies, were able to overcome the barriers associated with their condition. The flexibility of the distance learning environment enhanced their ability to support themselves.

CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

There are challenges that every distance learner must overcome to be successful. Being isolated from instructors and peers, finding a balance between the demands of school and other responsibilities in life, and possessing enough self-direction and motivation to work independently, are obstacles all distance learners face regularly. For students with disabilities, these challenges can be magnified and their condition can create additional barriers that must be overcome in order to achieve academic success. Recognizing the need for specialized support, institutions provide formal disability-specific support services that offer academic accommodations, advocacy, educational advising, information services, and counseling. Previous research has established the positive relationship between use of support and student success at the undergraduate level (e.g. Moisey, 2004). The goal of this study was to gain a better understanding of graduate students with disabilities studying at a distance and their experience with disability-specific support systems.

This study investigated the use of formal and informal support services by 14 graduate students with disabilities studying at a distance. This chapter presents the conclusions drawn from the results, a discussion of the implications for distance education practice, and recommendations for further research.

Conclusions

Through effective study strategies and the development of their own coping mechanisms, graduate students with disabilities studying at a distance were able to support themselves with nominal assistance from the institution. The participants showed the high level of self-reliance needed to succeed in post-secondary studies (Dowrick et al., 2005).

They were able to recognize how the disability impacted their studies, what barriers they had to overcome to succeed, and the challenges that arose because they were studying at a distance. This combination of skills suggests a high level of self-advocacy, as the participants had “an accurate and realistic understanding of themselves and [were able to] use that knowledge appropriately” (Shreiner, 2007, p. 300). Self-advocacy is one of the most important skills for success at the post-secondary level (Stodden et al., 2001; Stodden & Conway, 2003; Burgstahler, 1997). These skills are similar to the abilities that all distance learners need to be successful. Specifically, distance learners must have “the ability to manage and control their personal and situational circumstances in order to achieve” (Jegede, Taplin, Fan, Chan & Yum, 1999, p. 256). For students with disabilities, one of the circumstances they need to manage and control is the disability itself and its impact on their learning.

Distance education is well-suited for many learners with disabilities and can facilitate their own support and accommodations. For some participants in this study, distance studies minimized the impact of the disability on their learning and provided opportunities for self-support. This conclusion is similar to the findings of Kearns (1994) who contends that open learning has the potential to improve access for students with disabilities through its learner-centred focus, flexible delivery methods, support through the use of technology, and the empowerment of the learner. The experience of the participants in this study showed that they were able to develop their own accommodations and support, and demonstrate the remarkable opportunities distance learning can provide to students with disabilities.

The lack of informal interaction among peers is a concern. While students might choose not to participate in formal disability-specific support services, there are many

benefits that can be derived through natural supports, including the reduction of social isolation and increased levels of persistence (Scadden, 1998; Johnson, 2006). Concurrently, "services that cater to the psychosocial needs of students are likely to assist students academically" (Cain et al., 2003, p. 43). Insufficient or ineffective informal interaction minimizes opportunities for peer mentorship, a factor that has been linked to the development of higher career and academic goals of students with disabilities (Scadden, 1998).

Implications for Distance Education Practice

This study contributes to research at the intersection of distance education and disability by exploring the characteristics and disability-specific support needs of distance learners with disabilities. It has described the characteristics of a group of graduate students with disabilities, their disclosure or non-disclosure of the disability to the institution, the previous support they have received, the kinds of services and accommodations they need for success, and their use of disability-specific support services. The participants' choice not to participate in disability-specific support services was analyzed and, from this analysis, the following recommendations for distance education practice were derived.

More Information about Disability Support Services Needs to Reach Students

An important finding of this research was that none of the questionnaire respondents used the formal disability-specific support services at their institution. The most commonly cited reason why they did not avail themselves of these supports was they did not perceive any need for them. Another reason was lack of awareness about the services available.

The challenge for support service providers is the student's self-assessment of not needing any support services. In spite of the participants' high level of self-reliance and self-support, there may be unrealized benefits of participation in support services. Academic

accommodation is only one aspect of a disability support system. Supporting students with disabilities is much more than providing accommodations to help them complete a course. It includes counseling, funding and scholarship information, resources related to rights and responsibilities, and preparation for the transition to the workplace. If students are unaware of these non-academic supports, they cannot benefit from the full spectrum of services and accommodations available.

When a student is on-campus, there are innumerable methods in which information can be shared: posters on bulletin boards; the campus newspaper; informal discussions while waiting in line for coffee; quick announcements at the start of a class; and formal distribution, such as the institution's web site. When a course is delivered at a distance, there are fewer opportunities to disseminate information to students. Mediated communication, such as e-mail, text messaging, web sites, and components within a course management system are available but there is greater responsibility for students to seek out this information.

Ensure Faculty and Staff are Knowledgeable and Skilled

In their study of graduate students' use of support, Cain et al. (2003) found that "when students had questions about academic and administrative matters, most often they sought assistance from the course professor" (p. 50). For this reason, it is essential that instructional and administrative staff have a strong understanding of the rights and responsibilities of students with disabilities and the support systems that are available to help them. Concurrently, if students are seeking assistance from their instructors rather than support services, the instructor's attitude becomes even more important. Institutions must "support

faculty and create learning environments and campus cultures that support the teaching of online classes" (Floyd & Casey-Powell, 2004, p. 56).

This recommendation for better preparation of instructional staff is not a new one; it has been identified by Maddux (2004), Tagayuna et al. (2005), Coombs (1998), Burgstahler (2007), and Kearns (1994). This study, however, reinforces the importance of instructor-based support for distance learners with disabilities. For example, the participant who had to go through a rigorous process to prove to the professor that accommodations were needed and should be provided demonstrates that better instructor preparation is needed to ensure that students with disabilities are provided with an effective learning environment. A student who has disclosed the disability to the institution should not be required to justify the request for a reasonable accommodation.

There are barriers that need to be addressed to ensure that disability support education takes place. At some institutions, distance delivered courses are taught by part-time instructors, who might not have the opportunity to attend seminars or in-service training sessions. Concerns have been raised that disability support services are under-funded, which could affect faculty and staff training and development. Ultimately, "students would be better served at post-secondary institutions if there were a more comprehensive network of support services, working cooperatively to support students with disabilities and educating peers and faculty" (Dowrick et al., 2005, p. 45).

Accessible course design and delivery should also be included in professional development programs. The participants in this study named course flexibility, access to multiple formats for course delivery, supplementary materials, and opportunities for interaction as critical components for the success in their graduate studies. Course design that

incorporates these elements can minimize the impact of learners' disabilities. To ensure that benefits are maximized, course developers need to be knowledgeable of the instructional strategies for students with disabilities and of universal design instructional principles (Burgstahler, 2002). As Hoffman et al. (2005) explained, modifications made to assist students with disabilities often contribute to the success of all learners, not just those with special needs.

Recommendations for Further Research

The research at the intersection of distance education and students with disabilities is sparse. There is insufficient information about this population, particularly graduate students who have received little attention in the literature. The goal of this exploratory research was to learn more about these students with the hope that increased knowledge about their needs and use of disability-specific support services would lead to better practice. This research, however, has identified several areas for further study that might lead to a better understanding of the needs and expectations of this group.

This section presents four recommendations for future research: address the limitations of the study by exploring other populations, settings, and disability types; investigate non-use of support services in order to understand the factors that influence this choice; examine the impact of informal interaction among peers and with the instructor; and discover more about the relationship between type of disability and use of support services.

Address Study Limitations

In Chapter I, five limitations of this study were outlined: subjects were self-selected, not random; the study involved graduate distance learners so might not apply to other populations; it did not represent the full spectrum of disability; the number of students with

any given type of disability was not sufficiently large to draw conclusions related to the specific disability; and students studying education might have a different perspective on educational supports for students with disabilities than other graduate students. To effectively meet the needs of distance learners, service providers must have a clear understanding of their needs and expectations for support. As such, the first recommendation is to expand this study to other graduate students, both at the current institution, and to other post-secondary organizations. The group in this study had a sufficient level of autonomy and self-sufficiency that they were able to develop their own accommodations and provide personal self-support. Concurrently, as education students, they might have a different understanding of student support. As such, they are not representative of all graduate students.

Second, none of the participants had a visual impairment or a psychological disorder. Concurrently, the experiences of people in this study with a specific disability might not be representative of the experience for people with that disability. Further research is needed to learn more about students with each type of disability. In Moisey's (2004) study, for example, students with visual impairments who completed one or more courses received an average of 3.0 services per student, which was higher than the overall rate of 2.4 services per student. It is possible that graduate students with this type of disability might have been more likely to use disability support services. Research that represents all disability types would provide service providers with greater insight into the needs and expectations of these students.

Finally, it would be valuable to compare participation by graduate students studying at a distance with their on-campus counterparts. There is very little research available about graduate students with disabilities, regardless of the delivery mode (i.e., on-campus or

distance education). Does the delivery method affect participation rates? Does it vary if it is a distance education course delivered by a distance education institution versus a dual-mode school? Is there greater awareness of service availability, depending on the institution? Second, it would be valuable to expand this study to the use of all institutional support services and include non-disabled students. Cain et al.'s (2003) findings regarding graduate distance learners in general were similar to this study; graduate distance learners either were unaware of the availability of support or did not perceive the need for services. Research that explored this similarity would provide further insight into the support needs of graduate distance learners and help to uncover the unique requirements for students with disabilities.

Explore Students' Choice Not to Use Disability Support Services

This study found that none of the graduate students received disability-specific support services, even those who had disclosed their disability to their institution. Some had used services as an undergraduate, but did not use them as a graduate student. This research identified some of the factors that influenced a student's choice not to use the services, such as the perception of need, the desire not to disclose the disability, and the availability of support from other sources. Concurrently, it was found that the participants possessed a high level of self-sufficiency and the ability to apply effective study strategies and create their own academic accommodations, thus minimizing the impact of the disability.

These factors generate important considerations for educators and service providers when designing support programs and creating effective learning environments. It is doubtful, however, that these are the only reasons for non-use. The following could be considered when designing research to further investigate non-use of support services. First, this research uncovered issues related to past educational experiences that had a negative

impact on the learner with a disability. But are there relevant experiences for people who incurred the disability later in life? For older students, they might have experienced an educational system that isolated students with disabilities. Are they concerned about disclosure or disability support because of the treatment of people with disabilities they observed as children? Are there issues related to equality that are problematic? For example, one respondent chose “did not think it was fair” when asked why support services were not used. Additional research to learn about the perception of fairness and the role it plays in the use of support services and academic accommodations might identify further concerns.

Another important consideration is tied to the potential conflict between graduate students’ role as a student and within their adult life (Garland, 1994). Graduate studies demands a high level of autonomy from students and can be highly competitive as students vie for scholarships and research opportunities. Just as their role as an adult learner impacts this need for personal control, perhaps their status as graduate students is also relevant. This internal conflict might influence the decision whether or not to disclose a disability or to receive support. Research to better understand the need to be independent might help support services staff better understand the requirements of their clients and how to market their services to this group.

Finally, Moisey (2004) presented results related to the impact of support on students’ success. What is the impact for graduate students who choose not to use support services? Are there significant differences regarding the choice to participate between undergraduate and graduate students? Are there differences in persistence and success when students choose not to avail themselves of these services? Many respondents mentioned they did not need these services and evidence from the interviews showed that participants were able to adapt

their study methods to overcome the barriers associated with their disability. It would be helpful to know more about the decision not to participate. The lack of awareness about services might relate to the perception that services are unnecessary, especially as it relates to graduate students and their awareness of the full spectrum of services. More information about learners' perception of need and perception of support services might lead to better marketing strategies for support services, especially those focusing on support services that help students develop effective strategies for self-support.

Examine the Importance of Interaction with Peers and the Instructor

The third area for research relates to interaction. As Anderson (2003) states, for success, at least one of student-student, student-content, or student-instructor interaction must be at a high level. For the student to experience a more satisfying educational experience, at least two of these forms of interaction must be high. An important question arises from this idea. As discussed, there can be a conflict between a person's role as a student and as an adult, which influences the student's need for independence. Concurrently, there are important issues for students with disabilities that effect their choice to disclose the disability and to participate in the support services. Do these same issues of independence, disclosure, and participation influence the student's choice to interact with peers and the instructor? What effect does lack of interaction with peers and the instructor have on the educational experience of a student with a disability? All of the participants described the influence of the instructor, both positive and negative, on their learning experiences. Concurrently, the lack of informal interaction with peers was raised as a concern.

For students with disabilities, perhaps there is a fourth type of interaction to consider – interaction between them and the support network. This network might include their peers,

both classmates and other students with disabilities, their instructors, and support services staff. Lack of awareness, past experience with support, attitudes of others, and the decision not to disclose the disability all were cited as reasons for non-participation. Are there ways in which improved interaction would address issues related to non-participation? Participants in this study were highly independent, as demonstrated in their development of their own coping mechanisms and learning strategies. Does this trait influence their level of interaction, and are their consequences related to this lack of interaction? Investigating the way in which distance learners with disabilities interact with their peers, classmates, instructors, and the institution, might help to understand the value of interaction for these students and its impact on learning achievement, satisfaction, and persistence.

Explore the Relationship Between Type of Disability and Use of Support

The final recommendation for research is to learn more about the relationship between the type of disability or condition and the use of support services. There are three factors related to the disability that are of particular interest: the age at which the person was diagnosed; the academic level at which the person was diagnosed; and the amount of time that has passed since their diagnosis. More than half (57%) of the respondents in this study were over the age of 45. This older population is significant for two reasons. First, there is a higher rate of disability among this age group among than younger students. Second, the level of inclusion of persons with disabilities at school and in society was significantly lower several decades ago in comparison to today. How does this previous experience affect their perception of disability support, use of support services, and awareness of the rights of people with disabilities in comparison to their older counterparts?

Second, the academic level at which the person was diagnosed may play a significant role in the decision to use support services. At the elementary and secondary levels, institutions are legally required to identify and support students with disabilities. At the post-secondary level, students are responsible for seeking support. A student who incurred the disability as an adult may be unaware of their rights and responsibilities with respect to disability-specific services and support.

Third, the amount of time that has elapsed since the disability occurred might be important. Is there a relationship between how long a student has had a condition and their choice to disclose the disability or use disability support services? What is the role of insight and acceptance of the disabling condition? For example, in this study there appeared to be a level of acceptance of the disabling condition among the six interview participants. They could clearly define how the condition affected their lives and their studies, and had developed ways to support themselves – critical elements of self-advocacy and self-awareness. If, however, the disability has occurred recently, do they have the level of self-acceptance needed to effectively advocate for services? Are they aware of their rights? Do they know how they and their studies will be effected by their condition? Research to identify the student's level of self-advocacy, self-awareness, and self-determination would help support providers and educators to better understand the issues that concern learners with disabilities and their unique needs for services and support.

This research has focused on students with disabilities of the body, specifically a physical or mental condition or health problem. There are, however, other disabling conditions, such as social disability or financial disability, that can generate barriers to student participation and success. Distance education might offer similar benefits to students

impacted by other disabling conditions. Participants in this study were able to develop their own coping mechanisms and study strategies. Distance education, with its flexible, learner-centred traditions, contributed to this self-support. Would there be similar benefits for students with other disabling conditions? How would these students be supported? Would the same challenges related to non-participation impact support efforts for these students? Research to better understand the impact of the disabling condition, whether physical, mental, health, or stemming from another source, has the potential to provide better support systems to these students and, potentially, other learners.

Summary

This study was an exploration of the experience with disability-specific support services of graduate distance learners. While the unpredictability of the condition, its effect on reading and writing, and the physical challenges students faced were cited as potential barriers to success, respondents in this study did not use disability-specific support. Non-participation was influenced by a lack of awareness of services, past experiences with support, the attitudes of others, and the choice not to disclose the disability to the institution. It was also influenced by the perception of need for services. The participants in this group were highly independent and showed much resiliency. They were able to develop their own coping mechanisms and study strategies to overcome the impact of the disability. Concurrently, they were well served by distance education, with its flexible, learner-centred instructional model.

Barriers exist for these students that might be addressed by a better understanding of modifications to distance education practice, particularly the dissemination of information about disability-specific support services, and training and development for the faculty and

staff who work with these students. While distance education can provide benefits to students with disabilities, there is little research at the intersection of distance education and disability. There is still much to learn about access to distance education and the support needs of students with disabilities. To ensure informed decisions related to disability support practice are made, further research is needed. This research might investigate the choice not to use support services, the value of interaction with peers and instructional staff, and the relationship between type of disability and participation in support services. Finally, an investigation to understand how students are impacted by other disabling conditions might also have a significant impact on distance education practice.

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APPENDIX A

RECRUITMENT E-MAIL AND LETTER

The following e-mail message was sent to 886 program and non-program students and graduates. This message was sent by a member of the department's administrative staff; for privacy reasons, information that could identify that person has been removed. The recruitment letter that was attached to the e-mail is provided on the next page.

Dear Students:

Veronica Brown, a current MDE program student, is completing her thesis and is requesting your assistance with her research project. I've attached Veronica's letter of introduction for her research project.

I would also like to confirm that Veronica has submitted an application for approval to Athabasca University's Research Ethics Board (REB) in order to proceed with her research. This application has been approved by REB. However, with this approval, and keeping in mind the privacy of all Athabasca University students, Veronica has not been provided the names and e-mail addresses of students to contact. Therefore, I'm acting as the liaison person between the students and Veronica, and on her behalf, sending out the letter to students. Your personal information will remain private; if you participate in the study, only information you disclose to the researcher will be available to her.

As discussed in the attached letter, Veronica's research relates to students with disabilities. As such, she is asking only students with disabilities or other limiting conditions to participate in this research. In order to participate in phase one of Veronica's research project, she would like you to complete an online survey, which can be located at:

Survey's URL was inserted here

Should you have any further questions, please feel free to contact me.

Sincerely,

Department Contact's Information was inserted here

Athabasca University
1 University Drive
Athabasca, AB T9S 3A3

October 23, 2007

Dear MDE student,

I am a student in the Master of Distance Education program at Athabasca University conducting research under the supervision of Dr. Susan Moisey, Associate Professor, The Centre for Distance Education, Athabasca University. The purpose of this research is to explore the factors that influence the use of support services and accommodations by students with disabilities. Specifically, I will be studying the type of support students receive from various sources as well as students' expectations of the services for students with disabilities provided by Athabasca University. As a student with a disability, your opinions would be important to this study. I would appreciate the opportunity to receive your input on this subject.

There are two phases to this project. I will be conducting the first phase of this research during the next two weeks, which would involve answering a survey that would take ~10 minutes to complete. The survey is available online. The second phase of the project will involve a subset of the participants, who will be asked to be individually interviewed to provide more detailed views and opinions related to the services for students with disabilities available at Athabasca University. This interview will occur through e-mail approximately one month after the completion of the survey.

Your involvement in this research is completely voluntary and there are no known or anticipated risks to participation in this study. You have the right to refuse to participate and to withdraw at any time during this research, without prejudice. Furthermore, you may refuse to answer any question. *All information will be held confidential, except when legislation or a professional code of conduct requires that it be reported.* All information collected from you will be stored in a secure electronic location that can be accessed by the research team only.

If you have any questions about this study or would like additional information to assist you in reaching a decision about participation, please feel free to contact Professor Moisey at 1-866-403-7426 or via e-mail at susanh@athabascau.ca.

This study has been reviewed by and received ethics clearance from the Athabasca University Research Ethics Board. If you have any comments or concerns resulting from your participation in this study, please feel free to the Research Ethics Board at 1-800-788-9041 or via e-mail askresearch@athabascau.ca.

Thank you in advance for your interest in this project.

Yours sincerely,

Veronica Brown
MDE Program Student
Athabasca University
contact e-mail address

APPENDIX B

ONLINE CONSENT FORM

This survey contained three pages. The first page was the Informed Consent form. Based on the respondent's answer, they would be redirected to the appropriate page. Agreement to the informed consent question sent the respondent to Survey Page 2, which provided a link to the Online Questionnaire (Appendix C). Disagreement sent the respondent to Survey Page 3.

Survey Page 1

Athabasca University

The Centre for Distance Education

Informed Consent

Title of Research

Case Study of Support for Students with Disabilities Studying in a Distance Education Environment

Student Investigator

Veronica Brown, Graduate Student, Master of Distance Education Program, The Centre for Distance Education, Athabasca University

Thesis Supervisor

Dr. Susan Moisey, Associate Professor, The Centre for Distance Education, Athabasca University

contact information

You are invited to participate in a research study to explore the factors that influence the use of support services and accommodations by students with disabilities. We hope to learn more about students' need for support and expectations regarding support services and accommodations.

As a participant in this study, you will be asked to complete a questionnaire in which

you will be asked questions related to your disability, your previous experience with support and academic accommodations, and your current sources of support. A subset of participants will be invited to participate in an interview to provide more detailed views and opinions related to the services for students with disabilities available at Athabasca University.

Participation in this study is voluntary and might not benefit you personally. There are no known or anticipated risks to participation in this study. You have the right to refuse to participate and to withdraw at any time during this research, without prejudice. Furthermore, you may refuse to answer any question. All information will be held confidential, except when legislation or a professional code of conduct requires that it be reported. You will not be identified individually in any way in any written reports of this research. All information collected from you will be stored in a secure electronic location that can be accessed by the research team only.

This study has been reviewed by and received ethics clearance from the Athabasca University Research Ethics Board. If you have any comments or concerns resulting from your participation in this study, please feel free to contact the Research Ethics Board at 1-800-788-9041 or via e-mail askresearch@athabascau.ca.

Thank you for your assistance with this project.

Veronica Brown

MDE Program Student
Athabasca University

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1 *A copy of this form can be returned to you at your request*

I agree to participate in a study being conducted by Veronica Brown under the supervision of Dr. Susan Moisey of the Centre for Distance Education, Athabasca University. I have made this decision based on the information I have read in this Consent Letter and have had the opportunity to receive any additional details I wanted about the study. I understand that I may withdraw this consent at any time by telling the researcher.

I also understand that this project has been reviewed by, and received ethics clearance through, the Athabasca University Research Ethics Board, and that I may contact this office if I have any concerns or comments resulting from my involvement in the study.

To participate in this study, please click "I accept"

- I accept
- I do not accept

SUBMIT

Survey Page 2

Athabasca University

The Centre for Distance Education

Informed Consent

You have clicked the "I accept" button.

This research is interested in the experiences of students or graduates of the Centre for Distance Education (CDE) with disabilities or some other form of limitation that affects their day-to-day life. Non-disabled students should **not** complete this survey.

Your responses to this online survey are anonymous; there is no way that you can be identified. Your involvement in this research is completely voluntary and there are no known or anticipated risks to participation in this study. Your name will not appear in any report, publication or presentation resulting from this study. You have the right to refuse to participate and to withdraw at any time during this research, without prejudice. Furthermore, you may refuse to answer any question. All information will be held confidential, except when legislation or a professional code of conduct requires that it be reported. All information collected from you will be stored in a secure electronic location that can be accessed by the research team only.

Thank you for participating in this research. If you have any questions regarding this questionnaire, please contact my supervisor, Susan Moisey, at _____

This survey will take about 10 minutes to complete.

To complete the survey, please click here

SUBMIT

Survey Page 2

Survey Page 3

Athabasca University

The Centre for Distance Education

Informed Consent

You have selected "I do not accept".

At this time, you may not complete the survey. If you would like additional information about this project or would like to complete the survey, please contact Dr. Susan Moisey (*contact information here*).

SUBMIT

Survey Page 3

APPENDIX C

ONLINE QUESTIONNAIRE

Survey Page 1

Athabasca University

The Centre for Distance Education

Use of Support Services

Part 1 - Demographic Information

1

Age

- Younger than 25 years
- 25-29
- 30-34
- 35-39
- 40-44
- 45-49
- 50-54
- Older than 54

2

Gender

- Male
- Female

3

Marital Status

- Single
- Married or Common-Law
- Widowed
- Divorced

4

Number of Dependents

- 0
- 1
- 2
- 3
- 4 or more

5

How many Centre for Distance Education (CDE) courses are you taking currently?

- 0
- 1
- 2
- 3 or more

6

Are you currently employed?

- No
- Yes, part-time
- Yes, full-time

7

Location of residence

- In Alberta
- In Canada
- In North America
- In another part of the world

8

Which one of the following best describes your condition?

- Mobility Limitation
- Chronic Illness
- Learning Disability
- Psychological Disorder

- Visual Impairment
- Hearing Impairment
- Other, please specify

9

Have you disclosed your disability officially to Athabasca University?

- Yes
- No

Part 2 - Support Services and Accommodations

10

As an Athabasca University student, have you received services from Access to Students with Disabilities?

- Yes
- No

If yes, which services did you receive?

(For Questions 11 - 15, please select all that apply)

11 *Course Accommodation*

- Contract Time
- Alternative Format

12 *Exam Accommodation*

- Extra Time
- Communication Mode
- Environment
- Format

13 *Assistive Technology*

- Assessment
- Funding Arrangement
- Equipment Procurement
- Training

14 *Financial*

- Grant Application Assistance

15 *Counselling and Advising*

- Extra Tutoring
- Personal Counselling
- Academic Advising
- Vocational Advising

16 *Other (Please specify)*

17 If you did not receive services from Access to Students with Disabilities, did you receive disability-related services from someone else at Athabasca University?

- Yes
- No

18 If yes, from whom did you receive this assistance?
(Please select all that apply)

- CDE Faculty Member
- CDE Instructor/Tutor

- CDE Staff Member
- Staff member from another AU department (specify)

19 Have you used the services provided by any of the following Athabasca University groups? (Please select all that apply)

- Advising Services
- Computing Services
- Counselling Services
- Course Materials Production
- Learning Services
- Library Services
- Office of the Registrar
- Ombuds Office
- Prior Learning Assessment
- Students' Union
- Write Site

20 If you did not use services from Access to Students with Disabilities, why not? (Please select all that apply)

- Did not think it was fair
- Did not want to disclose information
- Did not need accommodations
- Receive sufficient support from other sources
- Other, please specify

21

Prior to attending Athabasca University, did you receive support services or accommodations related to your disability?

- Yes
- No

22 If yes, where did you receive these services? (Please check all that apply)

- Elementary school (K-8)
- Secondary school (9 – 12/13)
- Post-secondary school

What accommodations or support services did you receive?
(For Questions 23 and 24, please select all that apply)

23 *Accommodations*

- Extra time to complete homework
- Extra time to complete an assignment (i.e. an extension to the due date)
- Extra time on a test
- Use of assistive technology
- Alternate formats for print material
- Reduced Course Load
- Modified Course Requirements
- Assistance with Note Taking
- Other, please specify

24 *Support Services*

- Assistance from an Educational Assistant
- Assistance from a Resource Teacher
- Extra Tutoring
- Personal Counselling
- Academic Advising
- Vocational Advising
- Psycho-educational assessments (e.g. intelligence tests, memory tests, visual-auditory learning, language processing)
- Other, please specify

SUBMIT

Survey Thank You Page

Athabasca University

The Centre for Distance Education

Thank you for completing this survey!

If you would like to participate in the e-mail interview, please click here.

APPENDIX D

REQUEST TO PARTICIPATE IN INTERVIEW

To guarantee the privacy of respondents of the online questionnaire, the request to participate in the e-mail was completed through a separate survey. The survey was accessed by clicking “here” on the Survey Thank You page (Appendix C)

Athabasca University

The Centre for Distance Education

Participate in E-mail Interview

1 As explained on the recruitment letter, the second phase of the project involves individual interviews conducted via e-mail. The goal of this interview is to gather more detailed views and opinions related to the services for students with disabilities available at Athabasca University. This interview will occur approximately one month after the completion of the survey.

If you would like to participate in the e-mail interview, please enter your e-mail address in the space provided.

Please note that the collection of this e-mail address is through a separate survey; there is no way to link the submitted e-mail address to the survey you just completed.

SUBMIT

APPENDIX E

E-MAIL INTERVIEW QUESTIONS

- What kind of support or accommodations did you receive before taking courses through the Centre for Distance Education?
- What support or accommodation you received previously was most helpful?
- Was a transition plan created for you in high school? If yes, was it helpful?
- Did you receive any support or accommodation that had a negative impact on you?
- How does your disability affect your learning?
- As a student with a disability, what is the greatest barrier related to studying at a distance?
- What are the benefits of studying at a distance for you?
- Did you disclose your disability to Athabasca University? Why or why not?

The following questions relate to support from Athabasca University's Access to Students with Disabilities office

- Have you received services through ASD? Why or why not?
- If you received services through ASD, what services did you use and accommodations did you receive?
- What service do you think ASD should provide that was not available?

APPENDIX F

E-MAIL SENT TO INTERVIEW PARTICIPANTS

Dear participant,

This message relates to the second phase of my research, as per the attached Recruitment letter (a copy of the letter you received from *department's Administrative Assistant*). Specifically, "the second phase of the project will involve a subset of the participants, who will be asked to be individually interviewed to provide more detailed views and opinions related to the services for students with disabilities available at Athabasca University. This interview will occur through email approximately one month after the completion of the survey."

You have provided your email address to participate in the second phase of the study. Please complete the questions given at the end of this email message.

Your involvement in this research is completely voluntary and there are no known or anticipated risks to participation in this study. Your name will not appear in any report, publication or presentation resulting from this study. You have the right to refuse to participate and to withdraw at any time during this research, without prejudice. Furthermore, you may refuse to answer any question. All information will be held confidential, except when legislation or a professional code of conduct requires that it be reported. All information collected from you will be stored in a secure electronic location that can be accessed by the research team only.

Yours sincerely,

Veronica Brown
Athabasca University
Contact email address

Interview Questions

What kind of support or accommodations did you receive before taking courses through the Centre for Distance Education?

What support or accommodation you received previously was most helpful?

Was a transition plan created for you in high school? If yes, was it helpful?

Did you receive any support or accommodation that had a negative impact on you?

How does your disability affect your learning?

As a student with a disability, what is the greatest barrier related to studying at a distance?

What are the benefits of studying at a distance for you?

Did you disclose your disability to Athabasca University? Why or why not?

The following questions relate to support from Athabasca University's Access to Students with Disabilities office

Have you received services through ASD? Why or why not?

If you received services through ASD, what services did you use and accommodations did you receive?

What service do you think ASD should provide that was not available?

The following letter was attached to the e-mail

Athabasca University
1 University Drive
Athabasca, AB T9S 3A3

October 23, 2007

Dear MDE student,

I am a student in the Master of Distance Education program at Athabasca University conducting research under the supervision of Dr. Susan Moisey, Associate Professor, The Centre for Distance Education, Athabasca University. The purpose of this research is to explore the factors that influence the use of support services and accommodations by students with disabilities. Specifically, I will be studying the type of support students receive from various sources as well as students' expectations of the services for students with disabilities provided by Athabasca University. As a student with a disability, your opinions would be important to this study. I would appreciate the opportunity to receive your input on this subject.

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Thank you in advance for your interest in this project.

Yours sincerely,

Veronica Brown
MDE Program Student
Athabasca University
contact e-mail address