

November 2017

Understanding Student and Faculty Perceptions of the Accommodation and Support Procedures for Students with LD in Ontario Universities: A Mixed Methods Approach

Sarah Copfer Terreberry
The University of Western Ontario

Supervisor
Dr. Jacqueline Specht
The University of Western Ontario

Graduate Program in Education

A thesis submitted in partial fulfillment of the requirements for the degree in Doctor of Education

© Sarah Copfer Terreberry 2017

Follow this and additional works at: <https://ir.lib.uwo.ca/etd>

 Part of the [Disability and Equity in Education Commons](#), [Educational Psychology Commons](#), [Higher Education Commons](#), and the [Special Education and Teaching Commons](#)

Recommended Citation

Copfer Terreberry, Sarah, "Understanding Student and Faculty Perceptions of the Accommodation and Support Procedures for Students with LD in Ontario Universities: A Mixed Methods Approach" (2017). *Electronic Thesis and Dissertation Repository*. 5024. <https://ir.lib.uwo.ca/etd/5024>

This Dissertation/Thesis is brought to you for free and open access by Scholarship@Western. It has been accepted for inclusion in Electronic Thesis and Dissertation Repository by an authorized administrator of Scholarship@Western. For more information, please contact tadam@uwo.ca.

Abstract

With recent advances in disability policies, practices, and inclusive education mandates, students with learning disabilities (LD) are choosing to attend higher education at a rate that is greater than ever before. Despite these positive advances, however, the transition from secondary to higher education and the adjustment to post-secondary environments for students with LD continues to present a number of unique academic, social, and emotional challenges for this population, especially as this relates to obtaining access to accommodation and support for their learning needs. This study investigated how the needs of students with learning disabilities (LD) are currently being met at the post-secondary level in Canada by identifying potential barriers of access to support and accommodation. Specifically, this study aimed to understand the learning needs of students with LD in higher education settings, highlighting both students' and faculty members' perspectives of faculty preparedness to meet the needs of students with LD in today's university contexts.

Using a convergent parallel mixed-methods approach, this study employed two phases to assess the perceptions of both students and faculty from two different Ontario universities. Phase 1 took a quantitative approach, relying on the use of adapted versions of the *Faculty Preparedness Questionnaire* (Hansen, Dawson, & Specht, 2017). Participants included 64 students and 128 faculty from all disciplines across both universities. Phase 2 took a qualitative approach, relying on the use of interviews. Participants included 11 students and 20 faculty, both subsets of the populations specified in Phase 1. The theoretical perspective employed in this study relied on Bronfenbrenner's Bioecological Model of Human Development (1977; 1998; 2006) and Tinto's Theory of Student Integration and Retention (1975; 1993; 2012) to provide a multi-dimensional lens for examining the experiences of students and faculty in university contexts.

Overall, the perspectives and experiences of students with LD demonstrated that many felt undersupported by faculty in university classrooms. The perspectives and experiences of faculty aligned with this finding; while the majority of faculty held inclusive beliefs around teaching and supporting students with LD in the university context, results revealed discrepancies between faculty knowledge and their ability to provide effective, tailored support to students at the classroom level.

The findings of this study indicate a need for greater education and awareness for faculty about the nature of LD and the implications of this for student learning, and also a need for faculty training and more extensive professional development opportunities for faculty to learn more effective, practical pedagogical strategies to use in their teaching.

Keywords

Learning disabilities; faculty preparedness; faculty knowledge, faculty attitude; university; higher education; mixed methods.

Acknowledgements

First and foremost, I would like to thank my supervisor, Dr. Jacqueline Specht, for supporting me throughout this process. This has been a long (and difficult) journey at times, and I would not have been able to do it without your encouragement, guidance, and advice over the years. My sincere gratitude also goes to my committee member, Dr. Debra Dawson, for your attention to detail and your very helpful suggestions and insights on this project.

To my husband, Sean, for standing by me in this process over the last few years. Your unconditional love, encouragement, support, and understanding of the time commitment necessary to complete my studies kept me motivated to reach this milestone—for myself, but also for our family.

To my parents and my family, thank you for supporting me over the many years of my academic journey. Your love, encouragement, and belief in my academic capabilities have kept me going for all these years.

Thank you as well to my cohort and the many friends I have made throughout this process. I will forever be grateful for the incredible networks of support that were formed over the years and the many memories made with you all.

To the students and faculty who participated in this study—thank you for taking the time out of your busy schedules to share your insights and stories with me to make this study possible. Thank you also to the staff at the Disability Services Offices at the universities for your assistance in coordinating this study.

Table of Contents

Acknowledgements.....	iii
Table of Contents.....	iv
List of Tables.....	vi
List of Figures.....	vii
List of Appendices.....	viii
CHAPTER 1: INTRODUCTION AND REVIEW OF LITERATURE.....	1
Learning Disabilities in Canada.....	2
Postsecondary Outcomes of Students with LD.....	3
Challenges for the Student with LD in the Transition from Secondary to Post-Secondary Settings.....	7
The Role of Faculty in the Implementation of Supports.....	13
Study Rationale.....	20
Statement of Purpose.....	20
Research Questions.....	22
CHAPTER 2: THEORETICAL FRAMEWORK.....	23
Bronfenbrenner’s Bioecological Model of Human Development.....	24
Tinto’s Theory of Student Integration and Retention.....	28
Combining Bronfenbrenner’s and Tinto’s models.....	29
CHAPTER 3: METHOD.....	33
Research Design.....	34
Setting.....	35
Phase 1: Study 1.....	36
Phase 1: Study 2.....	39
Phase 2: Study 1.....	43
Phase 2: Study 2.....	45
Data Analyses.....	47
Ethical Considerations.....	52
Methodological Justification: Personal Beliefs and Epistemology.....	55
CHAPTER 4: QUANTITATIVE RESULTS.....	57
Preparing the Data.....	57
Descriptive Statistics.....	57
Inferential Statistics: Checking Assumptions of Data.....	58
Inferential Statistics: Applying Log Transformations.....	59
Inferential Statistics: Analysis of Variance (ANOVA).....	60
CHAPTER 5: QUALITATIVE RESULTS.....	69
Preparing the Data.....	69
Qualitative Results and Themes: Students.....	69
Qualitative Results and Themes: Faculty.....	96
CHAPTER 6: DISCUSSION.....	131
Addressing the Research Questions.....	133

Research Question 1: What are the attitudes and perceptions of both students with LD and faculty in terms of faculty preparedness to teach students with LD and the accommodation and support procedure for students with LD at the university level, and how do these compare?	133
Research Question 2: What are the specific barriers of access to accommodation and support that students with LD experience in university and how do they navigate these challenges?	139
Research Question 3: How do students' perceptions of the accommodation and support procedures employed in university (in terms of perceived barriers of access to accommodation and support, including faculty preparedness) impact on student development and growth in these settings?	144
Research Question 4: What are the perceived challenges that faculty members face in providing support to students with LD in the university setting and how do they navigate these?.....	148
Summary of Findings.....	150
Limitations	152
Implications for Practice	154
Suggestions for Future Research	156
Conclusion	157
References.....	159
Appendices.....	172
Curriculum Vitae	209

List of Tables

Table 1: Student (Survey) Demographics.....	37
Table 2: Faculty (Survey) Demographics.....	41
Table 3: Student (Interview) Demographics.....	44
Table 4: Faculty (Interview) Demographics.....	46
Table 5: Mean Scores: Faculty Knowledge by Years of Teaching.....	62
Table 6: Mean Scores: Faculty Attitude by Years of Teaching.....	62
Table 7: Mean Scores: Faculty Knowledge by Position Type.....	63
Table 8: Mean Scores: Faculty Attitude by Position Type.....	63
Table 9: Mean Scores: Faculty Knowledge by Faculty Rank.....	64
Table 10: Mean Scores: Faculty Attitude by Faculty Rank.....	64
Table 11: Mean Scores: Faculty Knowledge by Faculty/Department.....	65
Table 12: Mean Scores: Faculty Attitude by Faculty/Department.....	65
Table 13: Mean Scores: Faculty Knowledge by Participant (Faculty or Student).....	66
Table 14: Mean Scores: Faculty Attitude by Participant (Faculty or Student).....	66
Table 15: Mean Scores: Faculty Knowledge by Faculty/Department (All Participants).....	66
Table 16: Mean Scores: Faculty Attitude by Faculty/Department (All Participants).....	67
Table 17: Mean Scores: Interactions between Faculty/Students on Knowledge by Faculty/Department.....	67
Table 18: Mean Scores: Interactions between Faculty/Students on Attitude by Faculty/Department.....	68
Table 19: Qualitative Themes: Students.....	69
Table 20: Qualitative Themes: Faculty.....	96

List of Figures

Figure 1. Diagram of Bronfenbrenner's Bioecological Model of Human Development	30
Figure 2. Diagram of Tinto's Theory of Student Integration and Retention	31
Figure 3. Interaction between faculty/students on knowledge by faculty/department..	68

List of Appendices

Appendix A: University #1 Guidelines for Accommodation (DSO).....	172
Appendix B: University #2 Guidelines for Accommodation (DSO).....	178
Appendix C: Email Script for Recruitment, Students.....	184
Appendix D: Letter of Information and Informed Consent, Students	185
Appendix E: Reminder Email Script for Recruitment, Students	190
Appendix F: Student Perceptions of Faculty Preparedness Questionnaire (SPFPQ)	191
Appendix G: Ethics Approval, Western University	194
Appendix H: Email Script for Recruitment, Faculty	195
Appendix I: Letter of Information and Informed Consent, Faculty.....	196
Appendix J: Reminder Email Script for Recruitment, Faculty.....	200
Appendix K: Faculty Preparedness Questionnaire (FPQ)	201
Appendix L: Interview Schedule, Students	205
Appendix M: Email Script for Interview Recruitment, Students	206
Appendix N: Interview Schedule, Faculty.....	207
Appendix O: Email Script for Interview Recruitment, Faculty.....	208

CHAPTER 1: INTRODUCTION AND REVIEW OF LITERATURE

With recent advances in disability policies, practices, and inclusive education mandates, students with learning disabilities (LD) are choosing to attend higher education at a rate that is greater than ever before (Erten, 2011; Wolforth, 1998). In North America, a significant increase in the number of students with LD pursuing college and university degree programs is evident today (Freeman, Harrison, & Holtermann, 2012; Canadian Association of Disability Service Providers in Postsecondary Education, 1999; Ministry of Training, Colleges and Universities, 2008; Wolforth, 2012). Despite these positive advances, however, the transition from secondary to higher education and the adjustment to post-secondary environments for students with LD continues to present a number of unique academic, social, and emotional challenges for this population, especially as this relates to obtaining access to accommodation and support for their learning needs (Getzel & Thoma, 2008).

By broad definition, LD refers to a number of disorders which may affect the acquisition, organization, retention, understanding or use of verbal or nonverbal information and result from impairments in one or more neurological processes related to perceiving, thinking, remembering or learning (Learning Disabilities Association of Canada (LDAC, 2015). Until recently, these disorders were often defined and diagnosed in terms of three broad categories: reading disorders (dyslexia), writing/written expression disorders (dysgraphia), and disorders associated with mathematics (dyscalculia) (APA, 2013). The most recent version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V), however, has broadened the definition of LD to encapsulate all three categories under the term “Specific Learning Disorder” to highlight the interrelatedness and overlap between these as they impact on academic achievement (APA, 2013). Specific Learning Disorder, as defined by the American Psychiatric Association (2013) through the DSM-V, refers to a “neurodevelopmental disorder with a biological origin” that “disrupts the normal pattern of learning key academic skills” such as reading accuracy, fluency, and comprehension; written expression and spelling; arithmetic calculation and mathematical reasoning (p. 68).

Depending on the specific nature of the LD, students can face a number of challenges in an academic setting, including (but not limited to): difficulty with level or amount of work; potential problems with organizational ability, time management, and focusing on tasks;

communicating needs to others; interacting with peers, faculty and support staff; low self-esteem, weak interpersonal skills, and difficulty self-advocating (DaDeppo, 2009). Students who experience difficulties such as these often require special support in order to successfully integrate academically and socially into different learning environments (DaDeppo, 2009).

In Canada, however, differences in educational policies and disability documentation requirements between the inclusive Kindergarten-Grade 12 (K-12) system and the post-secondary system constitute many issues around the provision of accommodation and support at the higher education level for many students with LD (Ontario Human Rights Commission, 2003; Roberts, 2012). Implementation of support, if granted, also depends on a plethora of internal institutional factors such as faculty knowledge of legal requirements to provide accommodation, faculty and staff beliefs, attitudes and perceptions towards individuals with specific learning needs, and faculty knowledge of accommodation procedures (Harrison & Holmes, 2012; Harrison, Nichols, & Larochette, 2008; Hinds & Mather, 2007; Murray, Wren, & Keys, 2008; Zhang et al., 2010).

In order to understand these issues in more depth, this study takes a mixed-methods approach to explore the experiences, attitudes, and opinions of both students with LD and faculty members at Ontario post-secondary institutions around the support and accommodation process for students with individual learning needs at this level. Research evidence will be used to advance differing forms of knowledge of the experiences of students with LD within higher education settings in order to shape more appropriate educational policy and practice at these levels (Levin, 2008). The results of this study will also be used to inform the development of professional training programs for faculty members and educators at the higher education level to inform pedagogical practices around instruction and accommodation for students with LD.

Learning Disabilities in Canada

Learning disabilities (LD) constitute one of the most prevalent types of disability in Canada (Statistics Canada, 2012). While there are no definitive Canadian statistics, in total it is estimated that as many as one in ten Canadians and approximately 2.3 % of the Canadian adult population (15 years or older) live with a learning disability that limits their daily activities to some extent (Statistics Canada, 2012).

As knowledge, recognition, and acceptance of LD has increased over the past decades, so too have educational policies and legislation that encourage adolescents and young adults with LD to attend higher education (Erten, 2011; Wolforth, 1998). More and more students with LD, therefore, are pursuing post-secondary education. Because education is provincially legislated in Canada, the actual nationwide population of students with LD in Canadian postsecondary institutions is unclear (Wolforth, 2012). However, in Ontario alone, learning disabilities represent “the most common type of disability cited by students at post-secondary institutions” (Ontario Human Rights Commission, 2003, p. 45) and provincially reported data from Disability Services Offices in Ontario post-secondary institutions indicate that students with LD represent the largest disability-related population registered for support services (McCloy & DeClou, 2013). Overall, it is estimated that young adults with LD account for approximately 5% of any given postsecondary population (Henderson, 2001; Murray, Goldstein, Nourse & Edgar, 2000; Nichols, Harrison, McCloskey, & Weintraub, 2002; Tsagris & Muirhead, 2012), but because learning disabilities data documentation relies heavily on self-reported measures, the actual numbers of students with LDs in these environments may be even greater when considering those who have chosen not to formally self-disclose their disability (DaDeppo, 2009; LDAO, 2015; Wagner, Newman, Cameto, & Levine, 2005).

Postsecondary Outcomes of Students with LD

Despite the increase in attendance rates of students with LD in higher education, a vast amount of research suggests that postsecondary outcomes of students with LD remain poor in comparison to students without disabilities (DaDeppo, 2009; Gregg, 2007; Murray, Goldstein, Nourse, & Edgar, 2000; Statistics Canada, 2012; Wagner, Newman, Cameto, Garza, & Levine, 2005). Research examining student success for those with LD tends to focus in on three broad areas of explanation of student attrition: enrolment and retention rates, student academic performance, and affective/social-emotional aspects (DaDeppo, 2009; Freeman, Harrison, & Holtermann, 2012; Gregg, 2007). Overall, according to the Canadian Survey on Disability (2012), among adults with a learning disability who recently attended school, almost all (98%) stated that their disability impacted on their educational experience in at least one of these realms (Statistics Canada, 2012).

Enrolment and retention. Postsecondary enrolment and retention of students with LD is one of the most researched areas in postsecondary LD research. Research efforts in this area have attempted to shed light on poor post-secondary outcomes of individuals with LD in higher education by examining attendance and graduation rates. Though the number of students with LD attending post-secondary institutions has increased steadily over the past two decades (Foley, 2006), research has shown that students with LD continue to be underrepresented in higher education in comparison to their non-disabled peers (Murray, Wren, & Keys, 2008). In fact, research suggests that adolescents and young adults with LD are estimated to enroll in post-secondary education at one-tenth the rate of the general population (Wagner et al., 2005b), and for those that do attend higher education, dropout rates remain high (Horn, Berkold, & Bobbitt, 1999; Murray, Goldstein, Nourse, & Edgar, 2000; National Council on Disability, 2003). In Canada specifically, students with LD are significantly less likely to have completed post-secondary qualifications (35.6%) compared to those without disability (61.1%) (Statistics Canada, 2012).

A number of factors have been found to impact on both attendance rates and retention (Murray, Wren, & Keys, 2008), including cognitive and academic skills (Murray & Wren, 2003); affective components and motivation (Murray & Wren, 2003); previous educational experiences (Wagner, Newman, & Cameto, 2004); family support and expectations (Wagner et al., 2005b); financial resources (Chambers, Bolton, & Sukhai, 2013; Wagner et al., 2005b); post-secondary support services (Allsopp, Minskoff, & Bolt, 2005; Troiano, Liefeld, & Trachtenberg, 2010); and access to appropriate documentation for support services (Gregg, 2007). Without proper support in each of these areas prior to higher education entry, students are less likely to seek admission to post-secondary educational institutions, and more likely to be unprepared to succeed in the challenges involved at this level if they do attend (Estrada, Dupoux, & Wolman, 2006; Troiano et al., 2010).

Academic performance. Academic performance of students with LD is also well-researched in this field as it contributes to successful or unsuccessful outcomes of students with LD in higher education. Freeman, Harrison, and Holterman (2012) suggest that academic challenges and barriers to success experienced by students with LD can be examined at three distinct levels: the individual, the classroom, and the institution.

At the level of the individual, challenges inherent in having LD in an academic setting can impact significantly on student performance (DaDeppo, 2009; Freeman, Harrison, & Holtermann, 2012). Depending on the specific type of LD, students may experience difficulties in written and spoken language and literacy skills, numeracy skills, organizational problems, difficulty focusing on tasks and managing time, and difficulty self advocating their needs to others, all of which can contribute to poor academic functioning at the higher education level (DaDeppo, 2009; Skinner & Lindstrom, 2003; Smith, English, & Vasek, 2002).

Social adjustment has also been found to impact on student performance. While the ability to navigate the social demands of postsecondary settings has been identified as a key aspect of success at the higher education level (Freeman, Harrison, & Holtermann, 2012; Shaw, 2009), research suggests that many students with LD have difficulty with the social interactions that are necessary at this level. Specifically, LD may affect the way a student interacts with peers, service professionals, and faculty members (DaDeppo, 2009). Poor interpersonal and advocacy skills have been found to limit students' ability to request appropriate services and support (Janiga & Costenbader, 2002) which may in turn impact on their academic performance. It has been found that students who are highly engaged and socially connected to faculty, staff, and other students, on the other hand, are more likely to request support services, persist to graduation and be committed to their academic institution (Bolt, Decker, Lloyd, & Morlock, 2011; DaDeppo, 2009; Pascarella & Terenzini, 2005; Tinto, 1993)

At the classroom and institutional level, students with LD may experience barriers to success in terms of adjusting to more complex task demands, adjusting to changes in the provision of accommodation and support services offered, and in the amount and level of instructional and one-on-one support available (Freeman, Harrison, & Holtermann, 2012). The level of support services received, especially, has been shown to impact on student performance and success in postsecondary environments. In their investigation on the connection between academic learning support and college success, for example, Troiano et al. (2010) found that students who received academic support from the Learning Resource Center (LRC) had higher levels of success (measured by overall GPA and graduation) than those who did not use these services consistently. Specifically, a student's level of attendance at the LRC and the use of the services offered there were predictors of both graduation rates and higher cumulative GPA in

68% of the cases studied. Support services therefore play a key role in successful outcomes of students with LD at the postsecondary level.

Affective and social-emotional domains. A significant amount of research also focuses in on the relationship between affective and social-emotional aspects of LD and postsecondary outcomes in students with LD at the higher education level. Affective and social-emotional challenges of students with LD can encompass issues in the realms of self-concept, self-esteem, mental health, self-determination, and social/interpersonal skills (DaDeppo, 2009; Denhart, 2008; Freeman, Harrison, & Holtermann, 2012). Specifically, research has found that individuals with LD often have lower self-esteem, higher anxiety, and poorer interpersonal skills compared to individuals without LD (DaDeppo, 2009). Adults with LD are also more likely to report more mental health problems than those without LD (Wilson, Armstrong, Furrie, & Walcot, 2009). All of these can impact negatively on self-advocacy, self-determination, and social interactions; misunderstandings and the stigma associated with how these aspects are connected to LD can often create barriers to learning and success at the postsecondary level (DaDeppo, 2009; Denhart, 2008; Janiga & Costenbader, 2002; Zhang et al., 2010).

Research has shown that students with LD have heightened perceptions of bias against people with disabilities in the campus environment with regard to being respected, valued, and included (McGregor et al., 2016). In her qualitative study of college students' perceptions of educational barriers to learning, Denhart (2008), for example, found that students labeled with LD felt they were regarded by peers and faculty as intellectually inferior, incompetent, lacking effort, lazy, or not trying hard enough. Findings in the Canadian Survey on Disability (2012), furthermore, highlight that 57.5% of adults with LD attending school felt that people avoided/excluded them because of their disabilities, and 49.8% felt that they were bullied at some point in their education due to their disability (Statistics Canada, 2012). Students who reported these feelings also reported avoiding the use of support and accommodations that were mandated to them because of the perceived stigma associated with this support (Denhart, 2008). These findings are consistent with other research that suggests a connection between student self-concept and the use of support services (Field, Sarver, & Shaw, 2003; Janiga & Costenbader, 2002; Zhang et al., 2010). Understanding the affective and social-emotional challenges of students with LD in post-secondary settings is therefore a crucial component to

understanding both the potential barriers of access to support and overall postsecondary outcomes at this level.

Challenges for the Student with LD in the Transition from Secondary to Post-Secondary Settings

The transition from secondary to postsecondary settings and the discrepancies between K-12 and higher education systems creates additional challenges for students with LD planning to attend postsecondary institutions. In terms of structural and systematic differences between systems as a whole, the move from secondary to higher education and adjusting to the changes embedded within this generally presents challenges for most students (Tinto, 1975; 1993). For students with disabilities, however, this transition often encompasses even greater challenges that are unique to their individual needs (Getzel & Thoma, 2008; Harrison, Nichols, & Larochette, 2008).

Conceptual and definitional issues. As stated previously, learning disabilities encompass a number of disorders that may affect the acquisition, organization, retention, understanding, or use of verbal or nonverbal information (LDAC, 2015). Though often debated in research contexts, it is predominantly understood that LDs result from impairments in one or more neurological processes related to perceiving, thinking, remembering or learning (LDAC, 2015). It is also widely accepted that individuals with LD can be effectively supported in their everyday learning through appropriate strategies, instructional supports, and accommodations (APA, 2013; LDAC, 2015).

Because LDs are unobservable, how they are measured, defined, and identified has proven to be problematic (Fletcher, 2012). Multiple hypotheses and different classification models have been introduced over the years (neurological, cognitive, and instructional models; medical/discrepancy models vs. social models) and appear to depend on context and professions (educational, medical, legal), but no formal and agreed-upon definition currently exists across Canada or throughout the world (Chambers et al., 2013; Fletcher, 2012; Harrison & Holmes, 2012; Wolforth, 2012). The most recent definition provided by the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) provides a broad definition of what constitutes a Specific Learning Disorder, highlighting deficits that impact on academic achievement in the academic domains of reading, writing and arithmetic, and could prove to be valuable in the broad

identification process and access to support services for those with learning difficulties if institutions choose to adopt it. The vagueness of the features included in this up-to-date definition, however, appears to undermine scientific support behind specific disorders associated with learning disabilities (i.e. dyslexia) and be in opposition of some current understandings of aspects of LD, drawing question to the overall credibility of the definition as a whole (Colker, Shaywitz, Shaywitz, & Simon, n.d.)

Research suggests that there has been a shift towards more inclusive approaches in how LDs are conceptualized and operationalized in different contexts in North America, particularly in terms of the shift in focus from deficit models (i.e. LD as a cognitive deficit that can not necessarily be remedied by traditional means of teaching) to more socially situated instructional models (i.e. LD as a learning difference that can be supported with appropriate instruction) (Fletcher, 2012; Madaus & Shaw, 2006). Although LDs were once considered to be associated with discrepancies of intelligence and achievement alone, recent advances in scientific understanding now demonstrate the interconnection between intelligence, achievement, and processing functions in LD and demand for appropriate assessments and evaluations that coincide with this (Harrison et al., 2008). How these conceptualizations are operationalized in the post-secondary realm, however, often varies from institution to institution, proving to be a significant challenge in terms of ensuring that all students have access to and full participation in higher education settings (Fletcher, 2012; Madaus, Banerjee, & Hamblet, 2010; Shaw, 2009).

System-level differences. With the shift in focus towards more inclusive models of learning that most North American K-12 education systems currently follow and are legislated by, students with LD often face a number of challenges adjusting to the less-accommodating postsecondary environment (Vogel, 1993; Wolforth, 2012). Though several laws across Canada and the United States are in place to guarantee inclusion and equal access to education through individualized support and accommodation at both levels, discrepancies still exist in terms of how support services are provided to students across systems. In the United States, for example, the Americans with Disabilities Act defines and constitutes disability and provides guidelines around issues related to individuals with disabilities (Chambers et al., 2013), while the Individuals with Disabilities Education Improvement Act (IDEA, 2004), and Section 504 of the Rehabilitation Act (1973) mandates the provision of accommodations and support for students

with disabilities at both levels (Bolt et al., 2011; Shaw, 2009). In the K-12 system, students are evaluated and provided with support services based on the recommendations from the students' Individualized Education Plan (IEP) team (Bolt et al., 2011).

In Canada, similar laws around rights and equity exist broadly under Section 15 in the Canadian Human Rights Act of the Canadian Charter of Rights and Freedoms (1982) and through provincial legislation (i.e. in Ontario, the Ontario Human Rights Code, 1990), giving Canadian students the right to request reasonable accommodations for their diagnosed LD (Harrison et al., 2008). Students with LD as well as struggling learners without a formal diagnosis of LD in the K-12 system generally receive accommodation and support as decided on by the Individual Placement and Review Committee (IPRC) (in Ontario), and the IEP team, while students at the post-secondary level must request reasonable accommodations and provide appropriate documentation in order to receive them (Chambers et al., 2013; Harrison et al., 2008; Roberts, 2012). Unlike the United States, however, Canada currently does not have a dedicated federal law that develops standards for defining and addressing specific disability-related issues (such as the ADA in the U.S.), and only the provinces of Ontario, Manitoba, Nova Scotia and Quebec currently have legislation that directly addresses issues of accessibility for this population (Employment and Social Development Canada, 2016; Nova Scotia Accessibility Legislation, 2017).

In both countries, post-secondary institutions are required by law to provide accommodations and support to students with disabilities, but policies and guidelines around this tend to vary across state, provincial, and institutional settings and specific types of accommodations are largely conditional upon interpretation of individual cases and institutional operating budgets (Cox & Walsh, 1998; Chambers & Deller, 2011; Chambers et al., 2013; Lindstrom, 2007; Roberts, 2012). Students also only receive accommodations at this level if they provide appropriate (norm-referenced) documentation, which most do not receive from the K-12 system (Bolt et al., 2011; Harrison et al., 2008, Shaw, 2009; Wolforth, 2012). The shift in requirements between systems, thus, proves to be problematic for learners who have been accommodated in the K-12 system without formal documentation, as IEP support recommendations are often not acceptable (Harrison et al., 2008).

Qualification for support. Disability documentation at the post-secondary level has become a hot topic in LD research because of the numerous issues that surround it (Wolforth, 2012). Most institutions require students to submit formal documentation of their disability from qualified professionals and/or disability specialists prior to consideration of various accommodations and supports. Yet, because of varying definitions and models of LD, there is no standardized requirement of what this documentation must include, nor are there guidelines around how the LD should be measured/tested (Harrison & Holmes, 2012; Madaus, Banerjee, & Hamblet, 2010).

Acceptable documentation typically includes a psychological assessment from a qualified professional that demonstrates the functional impact of the disability on academic performance (Harrison & Homes, 2012; Shaw, 2009) and documents the disadvantage experienced by the student based on results from standardized or norm-referenced testing procedures (Wolforth, 2012). A diagnostic statement of LD from this assessment, however, is not always enough; many institutions also require a complete psychoeducational report (including information around the testing categories of intelligence, achievement, and processing functions), the specific type of LD diagnosed, required accommodations, and strategies specific to the learning needs of the individual student (Chambers et al., 2013; Harrison et al., 2008)). The diagnosis and documentation provided must also be comprehensive and up-to-date to demonstrate ongoing (permanent) impairment in academic functioning due to the LD (Harrison & Holmes, 2012). Because of the lack of a formal definition of LD and because of inconsistencies in diagnostic models used, little consistency exists in diagnosis and assessment procedures between psychologists and practitioners assessing LD, and thus information included in documentation also tends to vary (Harrison & Holmes, 2012; Philpot & Cahill, 2008; Wolforth, 2012). There is often considerable variability therefore in terms of both what higher education institutions require for appropriate documentation, and what psychological assessments include.

How LD is measured for documentation, and how accommodations are determined in higher education, are also issues of concern in current LD research. Many post-secondary settings require norm-referenced or standardized testing procedures for documentation and in order to determine accommodations for students at the post-secondary level (Harrison & Holmes, 2012; Wolforth, 2012). Some of these diagnoses, however, are based solely on IQ-

achievement discrepancy models, without taking into consideration the multiple dimensions of LD (Harrison & Holmes, 2012). As such, it is argued that such forms of assessment provide only one source of information, and fail to take into consideration “the learning context, task demands, and task format, all of which influence an individual’s performance” (Gregg, 2007, p. 221). Accommodations determined from these measures are often based on interpretation and don’t always take into account the nature of the disability, the resulting impairment, and/or the environmental context involved and tend to vary depending on institutional structure and requirements (Lindstrom, 2007; Roberts, 2012). These concerns are reflected in the K-12 system through more widely accepted inclusive teaching strategies and instruction-focused assessments (including Response to Intervention (RTI)), which tend to focus on teaching to all abilities instead of a discrepancy model basis for determining support services (Bolt et al., 2011). This gap between systems though, once again presents significant challenges for students wishing to attend post-secondary settings as identification at the elementary or secondary level does not always provide students with the necessary updated documentation or diagnosis for accommodation and support that the higher education institution requires (Bolt et al., 2011; Harrison et al., 2008; Shaw, 2009).

As part of a government-funded initiative, Harrison, Nichols, and Larochette (2008) examined these issues around disability documentation at the postsecondary level in a Canadian setting, focusing in on the quality of disability documentation being provided to students at the elementary and secondary levels and how this compared to the requirements of Canadian higher education institutions. A total of 247 students requesting accommodation at the post-secondary level across two universities and one college participated in the study. All students had been accommodated at the secondary school level. Documentation was examined for comprehensiveness in terms of information from the three main categories of tests (intelligence, achievement, and tests of psychological processes related to learning) and a formal diagnostic statement, where full documentation included all of these aspects, and partial documentation only included some of these. In total, almost a quarter of students did not provide any documentation at all for their disability, and only 5% of the sample population provided full documentation meeting the requirements. The remaining population provided incomplete or partial documentation of their disability, which included incomplete testing, education plans meant for identification purposes only, and assessment reports that lacked clear diagnoses (or a

combination of these). These results are consistent with other research that demonstrates the problem of disparities between disability documentation and requirements of post-secondary institutions (Gregg, 2007; Roberts, 2012; Shaw, 2009).

Classroom/instructional-level differences. Students with LD can also face a number of issues at both the classroom and instructional levels during the transition from secondary to post-secondary institutions. In particular, the transition from the K-12 system, where most students have been accustomed to individualized support and special education programming, to the less-structured and less-accommodating post-secondary environment, can present significant challenges for students trying to adapt to the new higher education setting (DaDeppo, 2009; Getzel & Thoma, 2008; Vogel, 1993). Canadian research on post-secondary service providers' beliefs and attitudes of the accommodation process, for example, found that 35% of post-secondary service providers believed that many students transitioning into higher education have been over-accommodated at the secondary and elementary levels, inhibiting them in some regard in post-secondary settings when they are left to manage their LD on their own (Wolforth & Harrison, 2008). The gaps between the two systems, therefore, can be quite problematic for student adjustment.

Differences in the classroom and instructional settings of post-secondary education and secondary environments demand that students with LD learn a variety of new academic and social skills in order to be successful in higher education (Bolt et al., 2011; DaDeppo, 2009; McGuire, 2010; Shaw, 2009). In terms of structure, student-teacher contact is often significantly higher in secondary school than post-secondary settings, and students with LD often automatically receive individualized support and accommodation at the secondary level (DaDeppo, 2009; Vogel, 1993). In higher education settings, however, students must self-identify their disability to both the disability services office and to their instructors, seeking out appropriate accommodations and support for different tasks and contexts (DaDeppo, 2009; Shaw, 2009). There is also often a decrease in instructional time, an increase in expectations for academic work, and less frequent formative assessment opportunities on student performance at the post-secondary level (McGuire, 2010). Furthermore, research shows that students with LD often face greater difficulty with academic assignments than students without LD (McGregor et al., 2016). These students must therefore know their rights and responsibilities and be able to

function independently at the higher education level, self-advocating for themselves and seeking out assistance, accommodations and support as needed (DaDeppo, 2009; Shaw, 2009).

Issues around self-disclosure. Self-identification and self-disclosure of disability for students with LD can be a difficult process for many. Research in this area has found that many students with LD do not initially choose to self-identify through formal channels for several reasons: many wish to avoid the stigmatization often associated with being labeled as having a disability (Getzel & Briel, 2006; Getzel & McManus, 2005, Getzel & Thoma, 2008); many are not able to afford the documentation required by post-secondary institutions or the perceived costs of accommodations (Chambers et al., 2013); and others many not believe their impairment constitutes a formally recognized disability (Wagner et al., 2005b; Trammell, 2009).

Self-advocacy and self-determination skills are key components of both self-identification and self-disclosure and connect to overall successful experiences at the post-secondary level for students with LD. Getzel and Thoma (2008) for example, suggest that students with disabilities require self-determination skills for successful transition to, adjustment to, and retention in post-secondary environments. In their qualitative study of 34 students, Getzel and Thoma (2008) found that students reported self-determination and self-advocacy skills as being essential to seeking accommodation and support services from the disabilities services office, forming relationships with faculty and instructors, developing peer support systems, and gaining self-awareness and self-understanding of themselves and of their disability. Specific skills of self-determination that supported these successes included problem solving, self-awareness, goal-setting, and self-management skills, which is consistent with other research on the essential skills required for post-secondary students with disabilities (DaDeppo, 2009; Getzel, Briel, & Kregel, 2000; Getzel, McManus, & Briel, 2004; Shaw, 2009). Self-advocacy and self-determination skills, therefore, are imperative to the receipt of accommodation and support services and also to overall academic success at this level.

The Role of Faculty in the Implementation of Supports

Faculty members play a critical role in the success of students with LD at the post-secondary level. In many ways, higher education faculty are the primary channels for which students gain access to learning opportunities that further their knowledge, skills, and abilities in their chosen disciplines (Scott & Gregg, 2000). For all students, faculty at the post-secondary

level “create the context for the delivery of instruction, ...develop systems that support knowledge acquisition, and...develop systems that assess student understanding of that knowledge” (Murray, Wren, & Keys, 2008, p. 96; Scott & Gregg, 2000). For students with LD and other disabilities, faculty also play an important role in the provision of accommodations and supports that equalize access to instruction and learning materials.

Faculty members’ knowledge of support services for individuals with LD and their ability to enact appropriate forms of accommodations impact directly on student success at this level (Gregg, 2007). Positive post-secondary outcomes of students with LD have been linked directly to the knowledge, support, and guidance of trained professionals at the higher education level and the relationship students have with these individuals (Gregg, 2007; Pascerella & Terenzini, 2005; Tinto, 1993; Troiano, 2003). Yet some research on faculty attitudes, beliefs, and practices suggests that faculty do not fully support students with disabilities at this level, despite their legal requirements to do so (Vasek, 2005; Zhang et al., 2010), and similar research on the perspectives of students and how they feel supported confirms this (Farone, Hall & Costello, 1998; Tsagris & Muirhead, 2012).

As an increasing number of students with LD continue to pursue higher education, faculty of these environments “will face greater demands to increase their understanding of LD, evaluate their attitudes toward students with LD, and develop strategies to work with students with LD in ways that are effective” (Murray, Wren, & Keys, 2008, p. 96). Considerable research has been conducted to investigate these areas and how these help or hinder student learning (Zhang et al., 2010). Overall, four main factors have been shown to influence classroom practices and the provision of accommodation and support for students with disabilities: faculty knowledge of legal requirements, personal attitudes and beliefs around students with disabilities, perceived institutional support, and level of comfort in interacting with individuals with disabilities (Zhang et al., 2010). Teacher training and knowledge of support services has also been found to influence faculty members’ willingness to implement accommodations and support for individuals with disabilities (Murray, Wren, & Keys, 2008).

Faculty knowledge of legal requirements. Faculty knowledge and understanding of the legal responsibilities to accommodate students with disabilities at the post-secondary level is crucial to the support process for students with LD. Knowledge of legal requirements for

students with disabilities has been linked to faculty willingness to provide support and accommodation at the higher education level (Rao & Gartin, 2003) and is also imperative to the provision of appropriate support for these students (Abu-Hamour, 2013).

Most research centered on faculty members' knowledge of legal requirements for students with disabilities demonstrates the need for teachers at this level to be more aware of their responsibilities to accommodate these students. Several studies, for example, suggest that faculty members possess limited knowledge of disability-related legislation, policies, and guidelines set out for them and are also unaware of their legal responsibilities to accommodate and support students with disabilities at the higher education level (Abu-Hamour, 2013; Burgstahler, Duclos, & Turcotte, 2000; Dona & Edmister, 2001; Vasek, 2005).

In one particular study assessing the knowledge base of just over 200 faculty members at a private, four-year post-secondary institution, almost one half of respondents acknowledged that they possessed little or no knowledge of federal laws pertaining to students with disabilities (Vasek, 2005). Other studies replicate these findings (Burgstahler et al., 2000) and also highlight the lack of knowledge around the legal responsibilities to provide accommodation and support at this level (Abu-Hamour, 2013; Dona & Edmister, 2001). Abu-Hamour (2013) specifically also found that this lack of knowledge impacted on the ability of faculty members to teach and accommodate students with disabilities in higher education. In order to provide necessary support to students with LD in post-secondary settings, it is essential, therefore, that faculty and staff have at least a base knowledge of disability legislation and their legal responsibilities to provide appropriate supports to students with LD as needed.

Personal attitudes and beliefs. Faculty attitudes and beliefs about LD also impact on the provision of support and accommodation at the post-secondary level and affect students' equal participation in the higher education environment (Roberts, 2012). Specifically, differing belief systems around disability, equal opportunity and equity, and the role of accommodation in equalizing learning opportunities at the post-secondary level have the potential to result in conflicting information and inconsistencies in accommodation and support services across different settings within the higher education environment (Roberts, 2012).

Differing attitudes and beliefs among faculty members in a given setting can be due to lack of knowledge of disability legislation, their legal responsibilities to accommodate and support students, and/or a lack of understanding of students' needs and appropriate supports for these (Getzel & McManus, 2005). Inconsistencies in these realms by faculty impact on student self-concept as students can be made to feel that they do not belong in the post-secondary environment (Roberts, 2012). Differing attitudes and beliefs around disability can also affect student participation in courses and in campus life as accommodations and support vary (Erten, 2011; Getzel & Thoma, 2008; Roberts, 2012; Vasek, 2005; Wilson, Getzel, & Brown, 2000).

Although research from 1990's and early 2000's (Becker, Martin, Wajeeh, Ward, & Shern, 2002; Cox & Klas, 1996; Houck, Asselin, Troutman, & Arrington, 1992; Matthews, Anderson, & Skolnick, 1987) indicate negative attitudes toward students in higher education with "hidden disabilities" (most prominently attention-related problems, learning disabilities, and psychological disabilities), more recent research tends to show a slightly more positive outlook, perhaps in part reflecting increased knowledge and acceptance of "hidden disabilities" and disabilities more broadly, and a shift towards greater acceptance in higher education overall. In the majority of studies examined for this review, it appears that faculty at the post-secondary level are generally supportive of individuals with disabilities and show positive attitudes and perceptions around their willingness to support them at the higher education level (Hindes & Mather, 2007; Murray, Wren, & Keys, 2008; Vasek, 2005; Zhang et al., 2010). In their study on faculty members' attitudes and perceptions of students with LD within a large private university, Murray, Wren, and Keys (2008), for example, found that faculty respondents in their sample held positive beliefs towards their knowledge of LD, their performance expectations for students with LD, their willingness to provide accommodations, and their actual provision of accommodations. These findings are consistent with several other studies conducted on faculty attitudes which may suggest a shifting perspective on the inclusion of students with disabilities in higher education settings (Hindes & Mather, 2007; Vasek, 2005; Zhang et al., 2010).

Some inconsistencies in attitudes within these studies are still evident, however, and should be noted in relation to the more negative attitudes addressed above. Faculty/instructor characteristics such as age, faculty discipline/department and faculty rank, for example, have been examined in the research as potential factors that impact on faculty willingness to provide

accommodation. Vogel et al. (2009) found that younger faculty members were more willing to provide accommodation than older faculty members and Rao (2002) found that those in social sciences disciplines like education, liberal arts, and architecture had more positive views of students with disabilities than those in science/math disciplines like engineering, commerce, science, and industry. Studies that examined faculty rank appeared to be conclusive in the fact that this did not appear to influence faculty attitude towards providing support to students in need (Rao, 2002; Williamson, 2000; Zhang et al., 2010).

More specifically, negative attitudes continue to prevail around the actual provision and implementation of supports and accommodations as this relates to the type of disability in question and the type of accommodations required. In terms of type of disability, some studies continue to demonstrate the negative perceptions around “hidden disabilities”; Hinder and Mather (2007) and Vasek (2005) both report more negative faculty attitudes towards these disabilities in comparison to physical disabilities and those that are more evident in nature. Types of accommodations required also produce mixed attitudes in several studies; Hinder and Mather (2007) for example, found that many faculty found it cumbersome to make accommodations for students in terms of time and workload, and many felt that having to provide these “lowered the bar” for students with disabilities. Zhang et al. (2010) showed similar results with many faculty perceiving accommodations to be unfair to students without disabilities and Murray, Wren, and Keys (2008) found that faculty are more willing to provide minor vs. major accommodations to students that don’t alter the format of exams or assignments. Overall, despite the evident shift towards acceptance in higher education environments, negative attitudes and belief systems around disability still exist and should be challenged at this level for fully inclusive environments to prevail.

Faculty training, knowledge of disability and knowledge of services. Faculty training for working with students with various needs also impacts on the types and levels of support students with disabilities are provided at the post-secondary level. Faculty in higher education need to hold a solid knowledge base of various forms of disabilities in combination with appropriate teaching strategies and types of accommodations and support services that they must legally provide to students in order to facilitate student access to learning at this level (Gregg, 2007; Roberts, 2012). Studies have shown that those who have had formal teacher training

and/or those who have worked previously with students with disabilities are better at understanding, assisting and supporting these students and are more likely to provide appropriate accommodations at the postsecondary level (Berry & Mellard, 2002; Zhang et al., 2010). Rao and Gartin (2003), for example, found that previous experience teaching students with disabilities led to increased willingness in providing accommodation to students who required it. Swart and Greyling (2011), furthermore, found that academic department/discipline played a role in the provision of support and accommodation; specifically, students in the humanities and social sciences experienced more support and adaptations than students in the natural sciences and economic and business sciences. In terms of LD specifically, Bigaj, Shaw, and McGuire (1999), for example, have found that preservice and inservice training on disabilities (coursework, practical experiences, specialized training opportunities) was associated with college faculty members' willingness to provide and implement the use of teaching and exam accommodations. Findings from a similar study conducted by Murray, Lombardi, Wren, and Keys (2009) around disability in general support these findings and extend them to the university level. In all studies, teacher training and previous experience in the area impacted on teacher attitudes towards disabilities in a positive manner and correlated with teacher ability to provide appropriate support (Bigaj et al., 1999; Murray et al., 2009).

Previous teacher training or knowledge of pedagogical approaches, however, is not typically a requirement for those working in faculty positions at the post-secondary level. Traditionally, expertise and content-knowledge in one's own discipline has often been the most valued feature of instructors at this level (Ouellett, 2004; Postareff, Lindblom-Ylance, & Nevgi, 2007; Scott, McGuire, & Shaw, 2003). This raises concerns about faculty members' ability to provide effective instruction to students—especially to those with disabilities (Bigaj et al., 1999; Houck et al., 1992; Scott, McGuire, & Shaw, 2003). Zhang et al. (2010) suggest that one possible explanation for the graduation disparity between students with LD and students without LD is the underpreparation of faculty in providing appropriate instruction and accommodations to students with disabilities. Given the range of abilities in students at the post-secondary level, faculty members need to have a solid grasp of inclusive teaching and learning strategies in order to meet the needs of all students. In addition to knowledge around accommodation implementation, faculty must be able to modify their instructional practices and adapt the surrounding environment to provide the same learning opportunities for all students in their

classrooms (Roberts, 2012; Scott, McGuire, & Shaw, 2003). Instead of relying on the “special education model of identify, label, tutor, and accommodate” using scripted accommodation procedures provided through documentation and the disabilities services office, faculty members need to take into consideration students’ individual needs, the larger environmental context, and the instructional delivery method for greater accessibility (Scott, McGuire, & Shaw, 2003, p. 371).

Perceived institutional support. Faculty members’ perceived institutional support from their post-secondary environment is one of the most important factors impacting on faculty willingness to provide reasonable accommodations to students with disabilities (Zhang et al. 2010). In their study of 162 faculty members’ perceptions of each of providing accommodations, Bourke, Strehorn, and Silver (2000) for example, demonstrated that faculty members who reported receiving greater support from administrative levels in serving students with LD reported greater perceived sufficiency of resources for providing accommodations to students and also greater ease of implementation of these. Perceived support in this study came primarily from the Learning Disabilities Support Services office, and faculty members’ departments, highlighting the importance of administrative services in providing guidance and knowledge around support services and accommodations at this level (Bourke et al., 2000). This is consistent with other research that highlights the necessity of disability support services offices and other administrative support systems in educating faculty members on disability-related aspects and providing professional development opportunities around teaching students with disabilities (Zhang et al., 2010).

Levels of perceived institutional support, however, vary by institution and appear to be dependent on a variety of other factors. In the same study outlined above, respondents perceived their resources and support in providing accommodations to students with LD to be less sufficient as the number of students with disabilities increased in a given classroom (Bourke et al., 2000). This is consistent with other studies that have highlighted concern from faculty members around a lack of resources in providing accommodation to large numbers of students at a given time (Berry & Mellard, 2002; Zhang et al., 2010). Time and time management has also been identified as a key issue in implementing appropriate levels of help and accommodations at this level (Berry & Mellard, 2002). These findings suggest the potential need for improvement in

areas of training and professional development provided to faculty members by administrative levels.

Study Rationale

Increasing numbers of students with LD in Canada and across the world are choosing to attend post-secondary education. Research continues to demonstrate, however, that the transition into higher education settings for this population can present a number of challenges for students with LD, especially as this relates to obtaining appropriate support and accommodations for their learning needs (Canadian Association of Disability Service Providers in Postsecondary Education, 1999; Freeman, Harrison, & Holtermann, 2012; Getzel & Thoma, 2008; Gregg, 2007; Ministry of Training, Colleges and Universities, 2008; Wolforth, 2012). Despite the availability of disability support services in post-secondary settings, higher education policies for students with disabilities, and disability-related laws set in place to ensure support services are provided for those with demonstrated need, research shows that not all students with LD may be receiving appropriate levels of support required for successful learning experiences to occur at the post-secondary level.

The provision and implementation of support services in higher education appears to depend on a number of factors, including the individual's ability to self-disclose their disability and self-advocate for their needs, disability documentation, faculty knowledge of legal requirements to provide accommodation, faculty and staff beliefs, attitudes and perceptions towards individuals with specific learning needs, and faculty knowledge of accommodation procedures (Harrison & Holmes, 2012; Harrison, Nichols, & Larochette, 2008; Hinds & Mather, 2007; Murray, Wren, & Keys, 2008; Zhang et al., 2010). While some research efforts have been made to investigate these issues, a scarcity of information exists around the actual lived experiences of students with learning disabilities in post-secondary environments. There is an urgent need therefore to investigate how the needs of students with LD are being met at the post-secondary level in Canada and to identify barriers of access to support and accommodation that may be occurring.

Statement of Purpose

From a student and faculty-focused perspective, and using a mixed methods research approach, this study investigates how the needs of students with LD are currently being met at

the post-secondary level in Ontario, Canada by identifying potential barriers of access to support and accommodation. The purpose of this study is to understand the learning needs of students with learning disabilities in higher education settings, highlighting both students' and faculty members' perspectives of faculty preparedness to teach students with LD and the effectiveness of various practices and policies that are currently in place to support students' overall inclusion into the higher education environment. Using a theoretical framework stemming from developmental perspectives in educational psychology, and by relying on both quantitative and qualitative research methods, this study seeks an understanding of the effectiveness of institutional policies and practices at the higher education level for students with learning disabilities; how faculty, service professionals, and other support mechanisms enact these; and the implications that varying levels of support have on student development, success, and overall well-being in post-secondary contexts.

Currently, limited research exists around the lived experiences of students with LD in postsecondary settings and institutional practices and policies that impact on the implementation of accommodation and support for them. Past investigations have examined factors contributing to the success or failure of students with LD in postsecondary settings, the majority of which focus in on isolated characteristics of the individual and/or environment and challenging aspects of the student experience individually (i.e. disability documentation; social/emotional well-being; academic success/grades, attendance, performance) using large-scale quantitative approaches (DaDeppo, 2009). Others yet have focused solely on the perspective of either the institution or the individual with LD separately, failing to take into consideration the multiple perspectives of the issue at hand. Little of this research takes a multidimensional approach to focus in on the issues, perceptions, and actual experiences of individuals with LD and faculty in these settings as a whole (Bolt et al., 2011; Denhart, 2008; Duquette & Fullarton, 2009; Hutchinson, 2008).

Given the importance of postsecondary education for future opportunities for employment and for meeting the demands of the increasingly global economy, especially for students with disabilities, it is crucial to understand how to best foster the academic growth of students with LD in higher education settings for success within and beyond the formal educational system (Gregg, 2007; Shaw, 2009). The mixed-methods structure of this

investigation addresses the current research gaps by permitting both a broad awareness of the multiple issues that students with LD and faculty who teach these students may be facing in Canadian higher education as well as an in-depth understanding of the experiences of students and faculty with the accommodation and support procedures in these settings.

Research Questions

Four primary research questions were used to guide this investigation:

- 1) What are the attitudes and perceptions of both students with LD and faculty in terms of faculty preparedness to teach students with LD and the accommodation and support procedure for students with LD at the university level, and how do these compare?
- 2) What are the specific barriers of access to accommodation and support that students with LD experience in university and how do they navigate these challenges?
- 3) How do students' perceptions of the accommodation and support procedures employed in university (in terms of perceived barriers of access to accommodation and support, including faculty preparedness) impact on student development and growth in these settings?
- 4) What are the perceived challenges that faculty members face in providing support to students with LD in the university setting and how do they navigate these?

CHAPTER 2: THEORETICAL FRAMEWORK

Educational research, and research in general, is conducted “within, not outside, broader historical, social and theoretical contexts. These contexts serve as the scaffolding for the questions we ask and how we go about answering them” (Ryan, 2006, p. 14). This chapter outlines the theoretical perspectives on which this study is based, highlighting how together they serve as a scaffold and as a means to understand the research issue in question.

The theoretical context for this thesis project is rooted in educational psychology and draws directly from the developmental perspectives of Urie Bronfenbrenner and Vincent Tinto. Bronfenbrenner’s (Bronfenbrenner, 1977; Bronfenbrenner & Morris, 1998; 2006) bioecological model of human development highlights the role of context and environment in the development and growth of individuals over time, and the impact that external forces have on human development (Lerner, 2005). Tinto’s (1975; 1993; 2012) model of student integration and retention capitalizes on Bronfenbrenner’s theoretical principles of understanding human development within context, and applies these specifically to understanding student development within environments of higher education. Both models consider human development as a person-in-context process, focusing in on the dynamic relationship individuals (in terms of their biological, social, and psychological aspects) have with their multidimensional environments over time.

A developmental perspective was chosen as the research issue stems directly from the relationship individuals with LD have with their immediate learning environments within the context of higher education. Roberts (2012) notes that in order to fully understand how accommodation works in post-secondary education, we not only must identify what the specific impairment is (i.e. learning disability) but also the environmental factors (such as policy structures, delivery methods, attitudes and beliefs) which may be contributing to disablement. Hutchinson (2008), furthermore, has suggested that the majority of research in the area of learning disabilities tends to focus in on the cognitive implications of learning disabilities alone, instead of taking into consideration the multiple dimensions that these (in reality) encompass. The use of Bronfenbrenner’s bioecological model of development, in conjunction with Tinto’s model of student integration, focuses in on the multiple dimensions of development for

individuals with LD, allowing an understanding of the cognitive aspects of these in relation to the developing individual and the changing social contexts in which they are embedded.

Bronfenbrenner's Bioecological Model of Human Development

As an empirically sound and heavily relied on theoretical framework in the field of developmental science for conceptualizing the process of human development, Bronfenbrenner's model asserts the notion that human growth and development is influenced (over time) as much by the immediate and external environments in which individuals live and are exposed to, as it is by their individual biological and psychological attributes (Bronfenbrenner & Morris, 2006). The relationship between the individual and the environment in this model represents one of reciprocity; the environment influences the individual within it, and the individual influences the environment in a bidirectional nature (Bronfenbrenner & Morris, 1998; 2006).

As a framework within the field of developmental science, Bronfenbrenner's theory takes into consideration multiple domains of individual development (biological, psychological, social), stresses the dynamic interplay of process (the relationship between the individual and the environment), and emphasizes the notion of time. These components are clear in the model's four defining properties: (1) *Process*: the process of interaction between the organism and the environment; (2) *Person*: the developing individual; (3) *Context*: the immediate and more remote environmental contexts; and (4) *Time*: the temporal periods in which the processes of interaction take place (Bronfenbrenner & Morris, 1998; 2006).

Process. A heavy focus in the bioecological model as a whole is placed on the property of *Process* and the interaction between the individual and his or her surrounding environmental systems. As one of the main theoretical propositions, development is said to take place over the life course "through processes of progressively more complex reciprocal interaction between an active, evolving biopsychological human organism and the persons, objects, and symbols in its immediate external environment" (Bronfenbrenner & Morris, 2006, p. 797). For development to transpire, interaction between the two must occur on a consistent basis and over extended periods of time (Bronfenbrenner & Morris, 2006). It is these "proximal processes" of interaction that constitute the driving force of human development (Bronfenbrenner 1977; Bronfenbrenner & Morris, 2006).

Depending on the nature of interaction, Bronfenbrenner's model postulates that the developmental outcome can be one of either "competence", where the individual integrates successfully with the environment and demonstrates developmental growth and progress, or "dysfunction", where the individual experiences difficulties in these realms (Bronfenbrenner & Morris, 2006). The nature of this depends highly on the joint functioning processes between the remaining three defining properties of the model: the individual characteristics of developing person (*Person*), the environmental context (*Context*), and the time period (developmental and historical) in which the developing person lives (*Time*) (Bronfenbrenner & Morris, 2006). How one interacts with their environment, and how one adapts or "fits" into this, therefore, is of crucial importance to the development process.

The concept of *Process*, and the focus on the interaction between the individual and the environment, is central to this research study; the dynamic relationship between individuals with LD and their surrounding environments within higher education is at the crux of the research problem and issue. This study relies on Bronfenbrenner's conceptual understanding of *Process* to help explain how the relationship between individual characteristics, aspects of the context, and multidimensional levels of time impact on the overall development of students with LD in postsecondary contexts in a broad sense. Specifically, this research relies on the component of *Process* to assess how the interaction between the additional three components (*Person*, *Context*, and *Time*) contribute to or detract from individual development and success, as determined by the person-environment "fit".

Person. The developing *Person*, the Bioecological model's second defining property, as defined by an individual's biopsychosocial characteristics, impacts on the *Processes* of interaction which constitute human development to a great extent (Bronfenbrenner & Morris, 2006). Specifically, Bronfenbrenner & Morris (2006) propose three types of *Person* characteristics that are most influential in their potential capacity to impact on this: personal dispositions, which set "proximal processes in motion and sustain their operation" (p. 796); resources of ability, experience, knowledge, and skill, which are "required for effective functioning of the proximal processes" (p. 796); and demand characteristics, which "invite or discourage reactions from the social environment that can foster or disrupt the operation of proximal processes" (p. 796).

Depending on the specific nature of these individual characteristics, and the specific nature of the environment, the processes of interaction that occur between the two varies (Bronfenbrenner & Morris, 2006). If the individual's attributes do not align with the environmental context, or vice versa, there may not be a person-environment congruency. The process of development therefore, again, depends on the bidirectional relationship between the *Person* and *Context* and the extent to which these "fit".

This specific focus in on the individual characteristics of the developing person and the relationship between these and the external surrounding environment also has considerable implications for this research study. Because this research focuses on individuals with learning disabilities whose struggles often impact on specific character traits, individual differences, and the influence of these on relationships, how the individual fits in the environment is of central concern. This research uses Bronfenbrenner's conceptualization of the developing person to gain an understanding of how individual differences in students with LD affect and are affected by the postsecondary context and what the implications of these relationships are for overall development.

Context. The evolving *Context* in the bioecological model, as the third defining property, refers to the surrounding environment in which the developing person lives, and in conjunction with the individual characteristics of the developing person, also impacts the process of development in a number of ways. Conceived as a multilayered, nested arrangement of structures, each contained within the next, Bronfenbrenner's model conceptualizes the environment in terms of five components: the microsystem, the innermost setting of the system containing the relations between the developing person and the immediate environment; the mesosystem, a combined set of microsystems and the interrelations between these in which the individual develops; the exosystem, an extension of the mesosystem which embraces specific social structures that influence the immediate settings of the developing person; the macrosystem, the overarching institutional patterns of culture and subculture such as political, economic, social, educational and legal systems which dictate the structure of the previously defined systems; and, the chronosystem, the multiple dimensions of time in which these systems exist (Bronfenbrenner, 1977; Bronfenbrenner & Morris, 2006). Depending on the nature of these

systems and the constructs and forces within them, each contextual level has the ability to impact on the developing person and the process of development in significant ways.

For this research study, Bronfenbrenner's conceptualization of the *Context* offers a structured lens for which to view the higher education context and the external influences that impact on the student development experience within this. The microsystem, for example, will refer primarily to the immediate learning environments of students with LD and the structural components within this (ie. classrooms, faculty/professors, peers) that students with LD are most familiar with. The mesosystem, second, will relate to the interrelations between various microsystems (different class structures, peer groups, the influence of family, etc). The exosystem, third, focuses in on components of the environment that influence the individual's development indirectly, such as educational policy within the institution, and policies around various support services. The macrosystem, fourth, relates to the cultural norms, beliefs and attitudes, values, and patterns that may influence how students are treated, such as overarching cultural beliefs, individual rights and freedoms (as set out by the Canadian Charter of Rights and Freedoms, the Ontario Human Rights Code, etc), social policies around inclusion, macro-educational policies around disabilities, etc. And last, the concept of the chronosystem will be used to examine the nature and change of development in individuals over time in relation to the multiple levels of the environment described above.

Time. *Time*, as conceptualized within the chronosystem, constitutes the fourth defining key property of Bronfenbrenner's bioecological model, and overlaps significantly in a number of ways with the previous three concepts of *Process*, *Person*, and *Context* in understanding the developmental processes of human beings (Bronfenbrenner, 2001). In relation to *Process*, time constitutes the frequency and duration of interaction between and individual and his/her surrounding environment and the impact of these on individual development. In terms of the developing *Person*, time is a central concept for understanding the nature and impact of individual growth and change over developmental stages and age. Last, in relation to *Context*, time is required to understand the impact of environmental events, transitions, and societal and historical changes that occur in the individual's surrounding environments on individual development. Each of these aspects of time is critical in this research study for examining the extent of development that occurs in the higher education context.

Tinto's Theory of Student Integration and Retention

Vincent Tinto's (1975; 1993; 2012) theory of student integration and retention offers my thesis project a more focused and specific framework for examining my research issue within the microlevel context in which it sits. In relation to Bronfenbrenner's bioecological model of human development, Tinto's framework provides me with a "zoom" lens for which to examine the microsystem-level forms and processes of interaction that take place between the developing person and the postsecondary context. Specifically, Tinto's model complements Bronfenbrenner's model as it zeros in on specific aspects that are unique to microsystem-level constructs within higher education settings, the relationship between these, and their ability to influence and shape individual human development of persons within these. Tinto's theory is used in this research study to understand the role of the higher education context and its institutional components in fostering student integration, success, and development within this.

Tinto's theoretical model was formulated as a means of explaining the processes of interaction between an individual student and the institution of higher education that lead differing individuals to drop out of these contexts (Tinto, 1975). As a largely sociological model, this theory sought to shed light on the role played by the academic and social environments of postsecondary contexts in the success and failure of its students—particularly those who have historically not fared well in the education system (individuals of low socioeconomic status, racial minorities, individuals with disabilities) (Tinto, 2012).

The model argues that student success or failure in higher education depends primarily on the extent to which the individual is able to integrate into the immediate and external environments of the higher education setting (Tinto, 1975). This integration can be conceptualized as a longitudinal process of interactions between the individual and the academic and social systems of the postsecondary context, during which "a person's experiences in those systems (as measured by normative and structural integration) continually modify [the individual's] goal and institutional commitments in ways which lead to persistence and/or to varying forms of dropout" (Tinto, 1975, p. 94). The model proposes, therefore, that the greater one is able to integrate into the environment, the greater the chance the individual commits themselves to the educational goals and to the institution, and the greater chance of overall success in those arenas.

Several factors play a role in the integration process in Tinto's (1975) model, including those of individual characteristics and dispositions, the interactions one has within the higher education context, and the institutional characteristics of the higher education setting. Individual characteristics include background characteristics (social status, previous experiences, community of residence, etc); individual attributes (sex, ability, race, ethnicity); and individual expectation and motivational attributes. The interactions one has within the higher education context refers to the individual's experiences within the academic and social systems of the educational environment, such as interactions that occur within the classroom (grading, intellectual development, interactions with faculty) and outside of classroom (interactions with peer groups, extracurricular activities, community). The institutional characteristics of the higher education context refers to its resources, facilities, structural arrangements, and composition of its members, and includes such aspects as programs offered, the size of the institution, and the faculty and staff involved. All three factors—individual characteristics, interactions with the higher education context, and institutional characteristics—impact on the extent of integration in which the student experiences.

Combining Bronfenbrenner's and Tinto's models

Tinto's theoretical propositions overlap Bronfenbrenner's conceptual framework in a number of significant ways. Specifically, the factors involved in successful integration in Tinto's model of student integration are parallel to Bronfenbrenner's defining properties of human development. For the purposes of this study, Tinto's model and its components will be used as a means of highlighting Bronfenbrenner's properties of *Person*, *Context*, and *Time* in context-specific detail (i.e. university settings).

First, in Tinto's model, the relationship between the individual and the environment and the interaction between the two are conceived as central to the integration process; integration of the individual within the higher education context, as facilitated by the proximal processes that drive human development in Bronfenbrenner's model, will not occur without the complex interaction between the two. Second, similar to Bronfenbrenner's concept of the developing *Person*, individual characteristics and dispositions in Tinto's model drive the process of interaction between the individual and the environment, which, in turn, facilitate development (Bronfenbrenner) or student integration (Tinto). Third, the impact of the environment on

development, as conceptualized in Bronfenbrenner's third property of *Context*, is articulated in Tinto's conception of the interactions that take place within the higher education context and as part of the institutional characteristics that he describes; both the interactions in the environment and the institutional characteristics of it correspond to various levels of context in Bronfenbrenner's model. Last, the concept of *Time* is evident in both models as they are both developmental in nature; both emphasize the nature of individual change and growth over time, in relation to past, present and anticipated future societal and historical changes. See Figures 1 and 2.

Bronfenbrenner's Bioecological Model of Human Development (1977; 1994; 2005)
(Adapted)

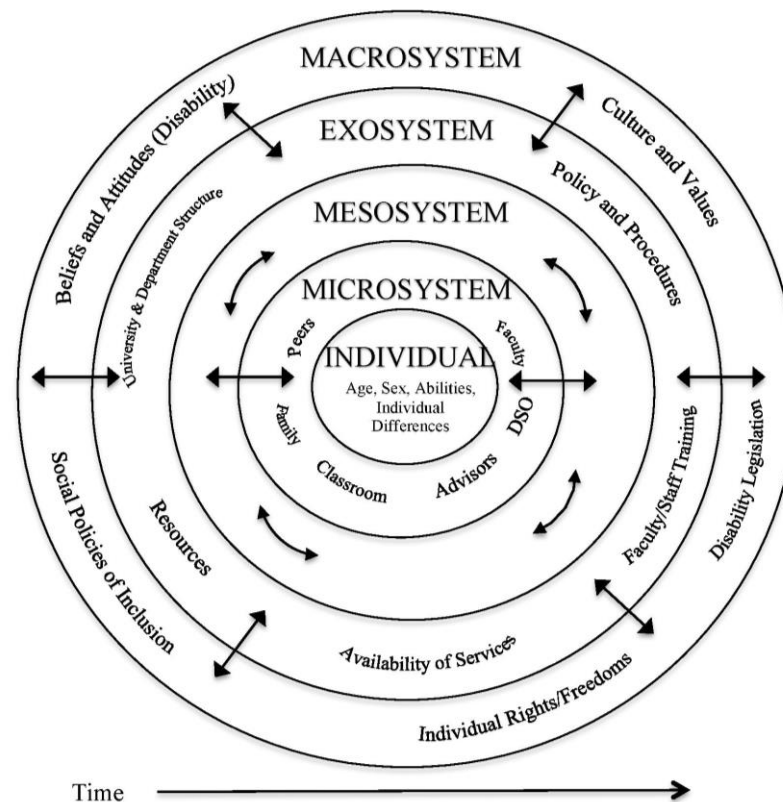


Figure 1. Diagram of Bronfenbrenner's Bioecological Model of Human Development. This diagram illustrates Bronfenbrenner's conceptualization of human development, adapted to reflect the university student and the environmental influences on the development of the student within the university context.

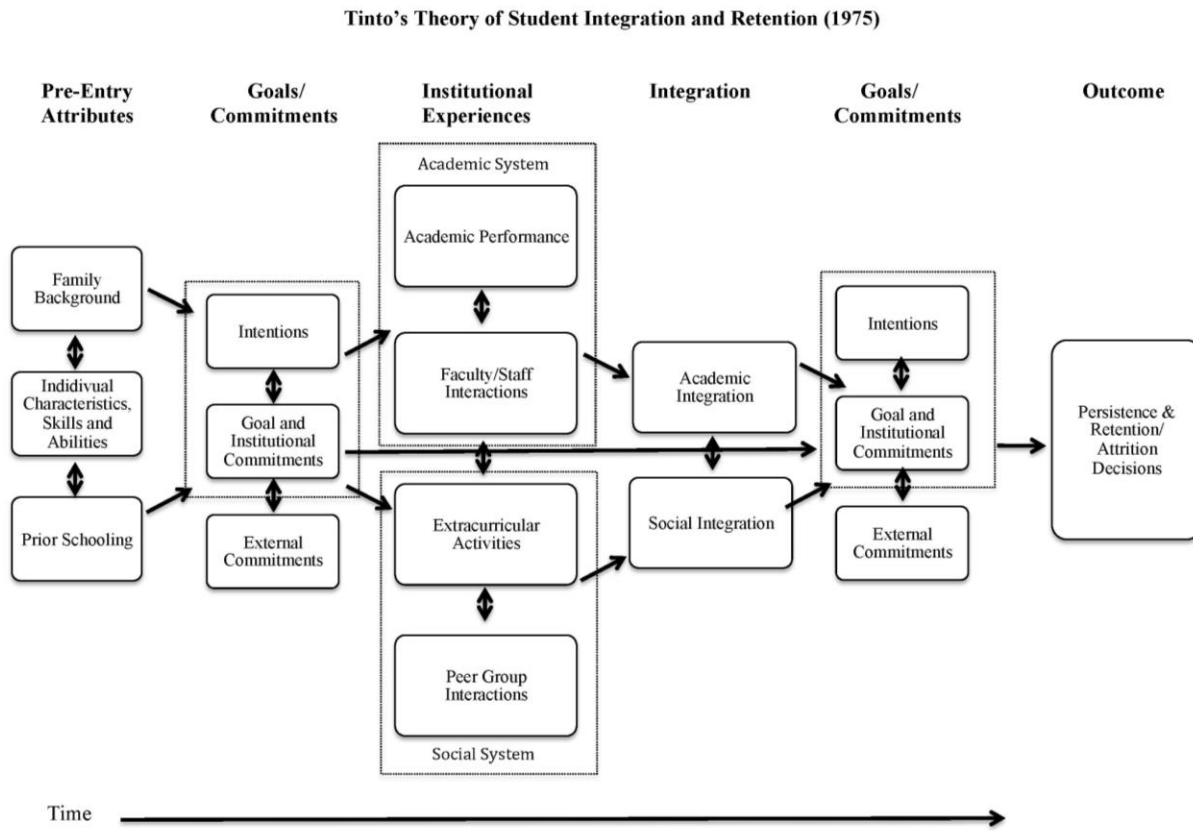


Figure 2. Diagram of Tinto's Theory of Student Integration and Retention. This diagram illustrates Tinto's conceptualization of student development, specific to the university context. This model provides a "zoom lens" into Bronfenbrenner's microsystem-level context of the university for understanding how student development occurs and is influenced by university-specific factors.

Similar to Bronfenbrenner's model, Tinto (1975; 1993; 2012) provides a multidimensional approach to understanding human development within and in relation to the surrounding environment. Offering a person-in-context perspective, Tinto's framework gives insight to the process of individual development for students in higher education as this relates to the psychosocial aspects of the individual, the structural components of the immediate postsecondary environment, and the processes of interaction between these that facilitate and shape development. While Tinto's model focuses on constructs within the immediate contexts of higher education (ie. classrooms and learning environments) and their relationship in fostering student development, it does not ignore the external forces that impact on these either; instead, Tinto's framework highlights the predominant peripheral forces that are unique to impacting on

the student experience in higher education settings, offering a holistic model of student development that supplements and harmonizes Bronfenbrenner's general concepts of the requirements for person-environment "fit".

CHAPTER 3: METHOD

This research study aimed to investigate how the learning needs of students with learning disabilities are being met in higher education settings, highlighting both students' and faculty members' perspectives of faculty preparedness to teach students with LD and the effectiveness of various practices and policies that are currently in place to support students' overall inclusion in the higher education environment. This chapter details the research design and methods that were used to explore this issue, providing rationale for support of specific methods and techniques.

This research study takes a mixed-methods approach to investigate how the needs of students with LD are being met at the post-secondary level. Mixed methods research designs use a combination of both quantitative and qualitative approaches to develop a deep understanding of a phenomenon of interest (Creswell, 2008; Venkatesh, Brown, & Bala, 2013). Teddlie and Tashakkori (2003, 2009) suggest that a mixed methods approach is more advantageous than a single method approach in that it has the ability to address confirmatory and exploratory research questions simultaneously, provides stronger inferences than a single method approach, and provides an opportunity for a greater assortment of divergent and/or complementary views. The use of this type of approach helps the researcher to focus on multiple and multilayered research questions and the use of multiple methods to collect and analyze data ensures triangulation and a high degree of reliability and validity in design, structure, and analysis (Trainor, 2011; Venkatesh, Brown, & Bala, 2013).

Two specific methods were used to carry out a mixed-methods approach: survey research and interviews. The combined use of these methods were for the main purposes of complementarity and completeness (Venkatesh, Brown, & Bala, 2013). Currently, limited research exists around the lived experiences of students with LD in post-secondary environments. Most studies in this topic area have relied primarily on quantitative approaches and measures to obtain a broad overview of the challenges and issues students face at this level, instead of using or incorporating qualitative approaches to more fully understand their individual voices, perceptions, and experiences (Bolt et al., 2011; Denhart, 2008; Duquette & Fullarton, 2009). This research study attempts to address this gap by combining quantitative and qualitative methods to gain a more comprehensive understanding of the issue in question.

Research Design

This study was comprised of two phases and took a convergent parallel design to provide a thorough understanding of the experiences of accommodation and support of students with LD at the university level. A convergent parallel design in mixed methods research collects quantitative and qualitative data simultaneously and then merges the two sets of results into an overall interpretation (Creswell & Plano Clark, 2011). Convergent designs are used to “obtain different but complementary data on the same topic” (Morse, 1991, p. 122) to best understand the research problem (Creswell & Plano Clark, 2011).

Phase 1. In Phase 1, two different studies took place with two different populations (identified students with LD, and faculty members of various disciplines) across two different Ontario university settings using survey research methods. Survey use in research is a methodological research strategy where quantitative (closed-ended questions) and/or qualitative (open-ended questions) information is systematically collected from a sample population in order to identify trends in attitudes, opinions, behaviours, or characteristics of the group (Andres, 2012; Berends, 2006; Creswell, 2008; de Leeuw, Hox, & Dillman, 2008). Phase 1: Study 1 surveyed the student population to identify and measure students’ beliefs about the challenges they face at the higher education level and students’ perceptions of faculty preparedness, while Phase 1: Study 2 surveyed the faculty population to identify and measure faculty attitudes and beliefs around their preparedness to teach students with LD. Used as a quantitative method in mixed-methods approach, survey research helped to operationalize the theoretical lens, measure and quantify the research phenomena, and generalize or transfer the interpretations of findings to a greater population (Creswell, 2008; Flick, 2002). Both Phase 1: Study 1 and Phase 1: Study 2 surveys were administered using an internet-survey format and took a self-administered approach where respondents completed the survey without the help of the researcher (Andres, 2012).

Phase 2. Phase 2 also consisted of two studies, but took a qualitative approach that relied on interviews. Specifically, in Phase 2: Study 1 and in Phase 2: Study 2, semi-structured interviews were conducted with subsets of students and faculty from Phase 1 and took a broad phenomenological perspective to explore how each population made sense of their lived experiences in the university setting and how they “transform experience into consciousness, both individually and as shared meaning” (Patton, 2002, p. 104). Interviews aimed to gather

more detailed information and data from research participants regarding the reasoning behind themes and issues found in the quantitative survey components of the study to "establish the complexity of the central phenomenon" (Creswell, 2008, p. 220). The goal of the qualitative interview, specifically, was to capture information from and about the informant's reality, in an attempt to understand individuals "on their own terms and how they make meaning of their own lives, experiences, and cognitive processes" (Brenner, 2006, p. 357). The broad phenomenological approach to the interview component was used in this study to highlight students' and faculty members' experiences with the phenomenon in an attempt to understand "how they perceive it, describe it, feel about it, judge it, remember it, make sense of it, and talk about it with others (Patton, 2002, p. 104). This approach in qualitative research views direct, lived experience as the means in which an individual's experience of the world is interpreted and made personally meaningful (Patton, 2002; Husserl, 1913). Interviews took a deductive approach and adopted a semi-structured interview protocol. Semi-structured interviews have "the advantage of asking all informants the same core questions with the freedom to ask follow-up questions that build on the responses received" (Brenner, 2006, p. 362). Using this format allowed the theoretical constructs in this study to be explored in a consistent and detailed manner while leaving room for personal insights and experiences that were unique to the individual. The casual and informal style that was adopted in this approach helped to build trust and rapport with the informants and encourage expansive responses (Brenner, 2006; Patton, 2002).

Setting

Two different university settings in Southern Ontario were used in this study. Quantitative and qualitative data were collected from four different sample populations (Phase 1: Study 1 student population (survey), Phase 1: Study 2 faculty population (survey), Phase 2: Study 1: subset of student population (interviews), and Phase 2: Study 2: subset of faculty population (interviews)) at each institution selected. The first university was of medium size, consisting of approximately 19,000 full-time and part-time students and approximately 600 full-time faculty members. The second university was of larger size, consisting of approximately 27,500 full-time and part-time students and approximately 1,400 full-time faculty members. Universities were selected based on institutional size and site location. Two different locations

helped to ensure representativeness of the target population, reduced various types of error associated with conducting survey research, and enhanced the generalizability of findings (Andres, 2012; Creswell, 2008; deLeeuw, Hox, & Dillman, 2008). Both university settings had well-established Disability Services Offices that served individuals across all academic disciplines (See Appendix A and B for each institution's disability-related policies).

Phase 1: Study 1

In Phase 1: Study 1, quantitative data were gathered through a survey using purposive sampling techniques of the student population. In this component of the study, participants were asked to complete structured surveys highlighting demographic information and their beliefs, attitudes, opinions, and behaviours around faculty preparedness to teach students with LD and their personal learning experiences in higher education.

Participants. Students of all ages across all disciplines were recruited by email through the Disability Services Office (DSO) at his/her respective university setting; participants were thus required to have a formal LD identification in order to participate in this study. The sample population was recruited through lists of students identified as having LD from the DSO at each institution using a volunteer sampling (self-selected) strategy within a convenience context (Andres, 2012). Obtaining a volunteer sample within the DSO context connects recruitment to 'place' and contextualizes the recruitment process to "give findings more meaning" (Andres, 2012, p. 98). Interest in participation, a letter of information containing informed consent, and a link to the survey were solicited through an email drafted by the researcher and sent out by each institution's DSO (See Appendix C and D). One follow-up email was sent out to all students in the sample again at a later date to serve as a reminder to those who had not yet participated (See Appendix E). Demographic information was gathered for the purpose of describing the sample population, however, personal identification data was not collected on the same survey as the research questions. Surveys were therefore anonymous.

In total, approximately 700 full and part-time students across both university settings were invited to complete an online questionnaire. Seventy-nine responses were received across both groups of students. Of the 79 responses, 15 did not answer more than the demographic portion of the questionnaire, so they were removed from the sample, leaving a total of 64 responses for analysis ($n=64$). Demographics of the student sample are outlined in Table 1.

Table 1

Student (Survey) Demographics (Sample n=64)

Gender	Number of Participants	Percentage (%)
Male	19	30
Female	44	69
Gender Not Specified	1	1
Year of Study		
First Year	11	17
Second Year	13	20
Third Year	16	25
Fourth Year	12	19
Fifth Year	4	6
Graduate Student	7	11
Other	2	3
Department/Faculty		
Social Sciences	51	80
Sciences/Math	12	19
Undisclosed	1	1

Measures. The student survey for Phase 1:Study 1 consisted of perceptions of faculty preparedness as related to faculty knowledge, attitudes, and institutional support received. This survey was chosen for use in this study because it aims to examine the role of faculty in meeting the needs of students with LD in postsecondary environments, and the role of the environmental factors in facilitating appropriate support—two key theoretical constructs guiding this study. This survey, *The Student Perceptions of Faculty Preparedness Questionnaire* (SPFPQ) was based on modifications of an existing survey, *The Faculty Preparedness Questionnaire* (FPQ) (Hansen, Dawson, & Specht, 2017) (See Appendix F). Items were added to this survey in consideration of current research literature. Face validity of the instrument with additional items was evaluated by a panel of experts in the field, including professionals from the DSO and researchers with expertise in learning disabilities. Reliability analysis using Cronbach's alpha (α) was also conducted on each of the subscales to examine the internal consistency of the instrument. Field (2009) suggests that a total scale score of .7 to .8 is an acceptable value for Cronbach's α , with any values substantially lower than .7 indicating an

unreliable scale. Item-total correlations were examined alongside of Cronbach's α to see how well each individual item on each subscale correlated with the total score of the subscale; if an individual item did not correlate well with the total scale score ($r < .3$), then these items were removed from the scale to improve the internal consistency of it (Field, 2009).

The Student Perceptions of Faculty Preparedness Questionnaire. *The Student Perceptions of Faculty Preparedness Questionnaire* is a modified version of the *Faculty Preparedness Questionnaire* (Hansen, Dawson, & Specht, 2017). The *Faculty Preparedness Questionnaire* (FPQ) is a 17-item survey that has been designed to measure faculty preparedness for teaching students with learning disabilities on a 6 point Likert scale (Strongly Agree—Strongly Disagree). The FPQ measures two factors associated with faculty preparedness: knowledge and attitudes. In its original format as the FPQ, the nine item knowledge scale has an internal reliability of $\alpha = .818$, and the eight item attitude scale had an internal reliability of $\alpha = .857$. This instrument was used to survey both the student population and the faculty population in this study. The original survey was designed to measure faculty perceptions of preparedness specifically, however, this study also relied on the FPQ to measure students' perceptions of faculty preparedness. For the student version, items were modified in terms of wording to reflect the student perspective of faculty preparedness. Two items were also added to the attitude subscale to suit the scope of this study; because the original survey format did not assess participants' feelings/attitudes toward the accommodation and support procedure and the impact of these on the instructors' job demands, the two additional questions added to the attitude subscale aimed to assess these aspects (from the student perspective). The resulting modified survey was called the *Student Perceptions of Faculty Preparedness Questionnaire* (SPFPQ). See Appendix F.

Face validity. As a result of the face validity assessment conducted by experts in the field, all items were appropriate and none required revision.

Reliability. Initial reliability for the SPFPQ knowledge subscale indicated very good reliability (Cronbach's $\alpha = .830$) for all 9 items. All individual items correlated well with the SPFPQ knowledge subscale overall ($r > .3$), so all items were preserved. Initial reliability for the SPFPQ attitude subscale also indicated excellent reliability (Cronbach's $\alpha = .918$) for all 10 items. All individual items correlated well with the SPFPQ attitude scale overall ($r > .3$), so all items were preserved.

Procedure. After approval from the Research Ethics Board from Western University to conduct this study (See Appendix G), Disabilities Services Offices from each university were solicited for their interest in participation in this study. A letter of information along with research ethics approval from Western University was sent to the director of each DSO at each university setting requesting their assistance and participation. A meeting was arranged between the researcher and the directors of each DSO to explain the study and confirm the DSO's interest and involvement in participating.

Once participation was confirmed, surveys were created online using a web-based survey creation tool (Qualtrics) and a pilot test of the instrument was carried out with a small sample of students in its online format to ensure appropriateness of language, assess understanding of instructions and questions, and to determine logical ordering of questions (Andres, 2012). Feedback on the survey was positive suggesting no changes were required. The recruitment email, along with the letter of information with informed consent for students detailing the nature and requirements of the study and the link to the finalized survey was then sent to each university's DSO office for email distribution (See Appendix C and D). This information was redistributed to students again approximately three weeks after the initial survey was sent out in order to remind students who hadn't yet participated of the opportunity (See Appendix E). Incentives to participate included a draw for a gift certificate to each university setting's campus bookstore. All survey data was collected online through the secure qualtrics.com website, and was only available to the researcher directly.

Once data collection was complete, survey data was downloaded from the online survey site, coded and prepared for descriptive and inferential statistical analysis.

Phase 1: Study 2

In Phase 1: Study 2, quantitative data were gathered through a survey using random sampling techniques of the faculty population. In this component of the study, participants were asked to complete structured surveys highlighting demographic information and their beliefs, attitudes, opinions, and behaviours around their preparedness to teach students with LD and their personal experiences teaching students with LD in higher education.

Participants. Faculty members across all disciplines of the two university settings were

recruited through email by the researcher using publicly available email addresses found on each university's website. Interest in participation, a letter of information containing informed consent, and a link to the survey were solicited through an email drafted and distributed by the researcher directly (See Appendix H and I). One follow-up email was sent out to all faculty members in the sample again at a later date to serve as a reminder to those who had not yet participated (See Appendix J). Demographic information was gathered for the purpose of describing the sample population, however, personal identification data was not collected on the same survey as the research questions. Surveys were therefore anonymous.

In total, approximately 2,300 full and part-time faculty members across both university settings were invited to complete an online questionnaire. One hundred and forty-one responses were received across both groups of faculty members. Of the 141 responses, 13 did not answer more than the demographic portion of the questionnaire, so they were removed from the sample, leaving a total of 128 responses for analysis ($n=128$). Demographics of the faculty sample are outlined in Table 2.

Table 2

Faculty (Survey) Demographics (Sample n=128)

Gender	Number of Participants	Percentage (%)
Male	57	45
Female	59	46
Gender Not Specified	12	9
Teaching Experience		
0-5 Years	19	15
5-10 Years	21	16
10-15 Years	25	20
15-20 Years	19	15
20 + Years	44	34
Faculty Rank		
Full Professor	35	27
Associate Professor	48	37
Assistant Professor	29	23
Instructor/Lecturer	16	13
Position Type		
Tenured	79	62
Tenure-Track	24	18
Other (e.g. adjunct, part-time)	25	20
Department/Faculty		
Social Sciences	66	52
Sciences/Math	62	48

Measures. Phase 1: Study 2 used the *Faculty Preparedness Questionnaire (FPQ)*, with additional items added that have been developed based on the literature review and the scope and purpose of this study (See Appendix K). Similar to the student survey, this survey was chosen for use in this study because it aims to examine the role of faculty in meeting the needs of students with LD in postsecondary environments, and the role of the environmental factors in facilitating appropriate support—two key theoretical constructs guiding this study. Face validity of the instrument and additional items was evaluated by a panel of experts in the field, including professionals from the Disabilities Services Office and researchers with expertise in learning disabilities. Reliability analysis using Cronbach's alpha (α) and item-total correlations were again conducted on each of the subscales to examine the internal consistency of the instrument. The same guidelines as previously noted in Phase 1:Study 1 for assessing internal consistency

were relied on based on the research of Field (2009).

The Faculty Preparedness Questionnaire (Hansen, Dawson, & Specht, 2017). The *Faculty Preparedness Questionnaire (FPQ)* is a 17-item survey that has been designed to measure faculty preparedness for teaching students with learning disabilities. The FPQ measures two factors associated with faculty preparedness: knowledge and attitudes. The original survey was designed to measure faculty perceptions of preparedness specifically and was used to measure faculty perceptions of preparedness in this component of the study. In its original format, the nine item knowledge scale had an internal reliability of $\alpha = .818$, and the eight item attitude scale had an internal reliability of $\alpha = .857$. Eight additional items were added to the original questionnaire to fit the scope of this study: four items to the knowledge subscale, and 4 items to the attitude subscale. In terms of assessing knowledge, the original FPQ did not ask questions about instructors' knowledge of institutional support services and professional development opportunities available to them for supporting students with LD in their classrooms, so the four items added to the knowledge subscale aimed to assess these areas. Additionally, in terms of assessing attitude, the original FPQ did not assess instructors' feelings/attitudes toward the accommodation and support procedure and the impact of these on their job demands, nor did it ask instructors about their feelings/attitudes toward the accommodation and support procedures/policies set out by their respective institution generally, so the four questions added to the attitude subscale aimed to assess these aspects (See Appendix K).

Face validity. As a result of the face validity assessment conducted by experts in the field, all items were appropriate and none required revision.

Reliability. Initial reliability for this modified version of the knowledge subscale indicated good reliability (Cronbach's $\alpha = .775$) for all 13 items. Item #23 ($r = .131$; "The university provides professional development opportunities to me to further my knowledge in supporting students with learning disabilities") correlated poorly with the FPQ Knowledge subscale overall ($r < .3$) so this item was removed from the scale. As a result, the reliability of the subscale as indicated by Cronbach's α increased to $.783$ for the remaining 12 items. Initial reliability for the modified version of the attitude subscale indicated very good reliability (Cronbach's $\alpha = .856$) for all 12 items. All individual items correlated well with the FPQ Attitude scale overall ($r > .3$), so all items were preserved. (See Appendix K).

Procedures. Once participation was confirmed with Disability Services Offices from

each university for Phase 1: Study 1 (see Procedures for Phase 1: Study 1) faculty surveys were created online using a web-based survey creation tool (qualtrics.com) and a pilot test of the instrument was carried out with a small sample population of faculty in its online format to ensure appropriateness of language, assess understanding of instructions and questions, and to determine logical ordering of questions (Andres, 2012). Feedback on the survey was positive so no changes were required. Faculty members' email addresses were then compiled from each university website and distribution lists were formed. A recruitment email, along with the letter of information with informed consent for faculty members detailing the nature and requirements of the study and the link to the finalized survey was then sent to faculty members directly from the researcher (See Appendix H and I). This information was redistributed to faculty again approximately three weeks after the initial survey was sent out in order to remind those who hadn't yet participated of the opportunity (See Appendix J). Incentives to participate included a draw for a gift certificate to each university setting's campus bookstore. All survey data was collected online through the secure qualtrics.com website, and was only available to the researcher directly.

Once data collection was complete, survey data was downloaded from the online survey site, coded and prepared for descriptive and inferential statistical analysis.

Phase 2: Study 1

In Phase 2: Study 1, qualitative data were gathered through interviews using a semi-structured interview protocol for the student population. In this component of the study, students were asked to answer questions about their learning and accommodation experiences within the university setting. Specifically, participants were asked to detail their experiences with instructors/professors and the DSO regarding the accommodation and support procedure.

Participants. Interviews were carried out with a volunteer subsample of students from Phase 1. Students of all ages across all disciplines were recruited through the Phase 1: Study 1 online student survey; specifically, students who wished to participate in an interview left their contact information in a separately linked section to the survey for the researcher to be able to contact them. To maintain anonymity of the research data collected through the surveys, a separate survey for identifying information was linked to the research questions to identify those

wishing to participate in Phase 2 (participation was optional).

In total, 11 student interviews took place over a period of two months and were conducted at either the student's university site location, a mutually agreed-upon setting outside of the university, or via Skype. All students who volunteered to be interviewed were interviewed. Students were asked to choose a location at the university where they felt comfortable (e.g., building, classroom, meeting room, library location, other location outside of the university), and the researcher made arrangements for a private location as close to this location as possible. Interviews were arranged in accordance with each student's schedule. Demographics of student sample are outlined in Table 3.

Table 3

Student (Interview) Demographics (Sample n=11)

Gender	Number of Participants	Percentage (%)
Male	2	18
Female	9	82
Student Rank		
Undergraduate	7	64
Graduate	4	36
Department/Faculty		
Social Sciences	6	55
Sciences/Math	5	45

Measures. Phase 2: Study 1 interviews were used to supplement the Phase 1: Study 1 quantitative data (surveys) and highlight the lived experiences of students with LD in university settings in greater detail. The interview protocol followed a semi-structure script procedure and was developed based on the research questions and themes/issues identified in the review of relevant literature. Questions aimed to further understand student experiences with faculty in the context of the university environment, the environmental barriers to learning that students experienced at this level, and the implications these experiences had on learning and development, as connected to the theoretical constructs guiding this study. Students were asked to describe their learning experiences in the university context, recalling specific experiences they have had relating to obtaining support and accommodation for their learning needs in order to understand the “essence” of the challenges they may have faced in this context (Johnson & Christensen, 2008). See Appendix L.

Procedures. Once participation was confirmed with Disability Services Offices from each university and ethics from each institution was received (see Procedures for Phase 1: Study 1), a pilot test of the interview questions was carried out with a small sample of students to ensure appropriateness of language, assess understanding of instructions and questions, and to determine logical ordering of questions (Andres, 2012). No changes were required to the interview protocol upon completion of the pilot test.

Surveys from Phase 1: Study 1 were scanned to determine student participants for the second phase of the study (Phase 2: Study 1). Once this population was determined, a follow-up email was sent to prospective participants detailing the nature and requirements of the study again and inviting them to set up an interview time with the researcher (See Appendix M). Interviews took place once participants and the researcher determined a location and time that was convenient and took approximately 30-60 minutes. Data was tape recorded and then later transcribed for coding and analysis.

Phase 2: Study 2

In Phase 2: Study 2, quantitative data were gathered through interviews using a semi-structured interview protocol for the faculty population. In this component of the study, faculty were asked to answer questions about their teaching experiences within the university setting. Specifically, participants were asked to detail their experiences in meeting the needs of students with LD in the classroom setting with regard to providing accommodation and support.

Participants. Interviews were carried out with a volunteer subsample of faculty from Phase 1. Faculty across all disciplines were recruited through the Phase 1: Study 1 online faculty survey; specifically, faculty who wished to participate in an interview left their contact information in a separately linked section to the survey for the researcher to be able to contact them. To maintain anonymity of the research data collected through the surveys, a separate survey for identifying information was linked to the research questions to identify those wishing to participate in Phase 2 (participation was optional).

In total, 22 faculty members expressed interest to participate in interviews. Two individuals did not end up participating. A total of 20 faculty interviews therefore took place over a period of two months and were conducted at either the faculty member's university site location, a mutually agreed-upon setting outside of the university, or via Skype. Faculty were

asked to choose a location at the university where they felt comfortable (e.g., building, office, classroom, meeting room, library location, other location outside of the university), and the researcher made arrangements for a private location as close to this location as possible.

Interviews were arranged in accordance with each faculty member's schedule. Demographics of the faculty sample are outlined in Table 4.

Table 4

Faculty (Interview) Demographics (Sample n=20)

Gender	Number of Participants	Percentage (%)
Male	11	55
Female	9	45
Faculty Rank		
Full Professor	6	30
Associate Professor	6	30
Assistant Professor	5	25
Instructor/Lecturer	3	15
Department/Faculty		
Social Sciences	11	55
Sciences/Math	9	45

Measures. Phase 2: Study 2 interviews were used to supplement the Phase 1: Study 2 quantitative data (surveys) and highlight the lived experiences of faculty members in teaching students with LD in university settings in greater detail. The interview protocol followed a semi-structure script procedure and was developed based on the research questions and from themes/issues identified in the review of relevant literature. Questions aimed to further understand faculty experiences teaching students with LD in the context of the university environment, the environmental barriers to effective teaching that they experienced at this level, and their perceptions of the implications these experiences had on students, as connected to the theoretical constructs guiding this study. Faculty were asked to describe their teaching experiences in the university context, recalling specific experiences they have had relating to supporting students with LD in their classrooms in order to understand the “essence” of the challenges they may have faced in this context (Johnson & Christensen, 2008). See Appendix N.

Procedures. Once participation was confirmed with Disability Services Offices from

each university and ethics from each institution was received (see Procedures for Phase 1: Study 1), a pilot test of the interview questions was carried out with a small sample of faculty to ensure appropriateness of language, assess understanding of instructions and questions, and to determine logical ordering of questions (Andres, 2012). No changes were required to the interview protocol upon completion of the pilot test.

Surveys from Phase 1: Study 2 were scanned to determine faculty participants for the second phase of the study (Phase 2: Study 2). Once this population was determined, a follow-up email was sent to prospective participants detailing the nature and requirements of the study again and inviting them to set up an interview time with the researcher. (See Appendix O). Interviews took place once participants and the researcher determined a location and time that was convenient and took approximately 30-90 minutes. Data was audio recorded and then later transcribed for coding and analysis.

Data Analyses

In conjunction with the convergent mixed-methods approach, quantitative and qualitative data were analyzed first, and then both data sets were analyzed together for the overall interpretation of findings (Creswell & Plano Clark, 2011).

Phase 1: Quantitative analysis. Quantitative data for this study was analyzed using SPSS Statistical Analysis Software. Student and faculty survey data from Qualtrics was imported into SPSS (version 24) for descriptive and inferential quantitative analysis. Descriptive statistics were used in this study to describe, summarize, or make sense of a particular data set at a simplistic level, while inferential statistics were used in this study to move beyond the data to “infer the characteristics of populations based on samples” (Johnson & Christensen, 2008, p. 464). Descriptive statistical analysis for each set of data (students/faculty) was conducted to determine means, standard deviations, and variance of responses to items on the instruments and general trends in the data (Creswell & Plano Clark, 2011). Findings were interpreted based on data trends and a comparison of responses. Responses from each set of data were then compared using Analysis of Variance (ANOVA) to determine whether students and faculty perceptions of faculty preparedness and the accommodation and support procedures in higher education differ. Interpretations of these findings were based on statistical significance.

Credibility: Because inferential statistics are used to apply conclusions about a sample to

a more general population, careful consideration needed to be given to the design of the quantitative study in relation to how well the sample reflects the population (Field, 2009). Sample selection, sample size, and ensuring that assumptions of the data were met (normality, homogeneity of variance, independence) were of importance to the statistical tests used in this study.

Sample selection. Sampling for the quantitative phase of this study were in the forms of both purposeful and random sampling. The sample of the student population was obtained using a purposeful sampling strategy, where participants were intentionally recruited because they have experienced the central phenomenon being explored in this study (Creswell & Plano Clark, 2011). The sample of the faculty population was obtained using a random sampling strategy where participants were selected randomly in order to obtain a representative view of the greater population (Creswell, 2008). Much research suggests that random sampling offers the most rigorous form of sampling for valid statistical estimations of the population (Johnson & Christensen, 2008; Creswell, 2008). Random sampling was therefore used with the faculty population, but a purposeful sampling strategy for the students was necessary in this study in order to ensure that the specified population was the only population being sampled to increase validity in the responses.

Sample size. Sample size is an important feature when conducting statistical analysis in any research. Conclusions from a research study can be drawn to a more general population if the sample size is large enough and representative enough of the views of the population (Field, 2009). Large sample sizes allow for increased statistical significance because there is greater confidence in the results (Field, 2009). The importance of a research finding is typically dependent on three factors: sample size, the probability level at which we accept a finding as statistically significant (in psychology, $\alpha = 0.5$), and the ability of the test to detect an effect size (Field, 2009). Field (2009) suggests that we should aim to achieve a power of .8 or an 80% chance of detecting the effect size in a sample. With the desired level of probability ($\alpha = .05$) and the desired level of power (.8) in mind then, Cohen (1992) suggests that a sample of 783 participants would be needed to detect a small effect size ($r = .1$), 85 participants would be needed to detect a medium effect size ($r = .3$) and 28 participants to detect a large effect size ($r = .5$). The population sizes of the samples used in this study (64 students, 128 faculty), therefore,

were determined to be adequate to achieve medium to large effect sizes.

Assumptions of the data. Prior to conducting inferential statistics, three key assumptions of the data must be met: normality, homogeneity of variance, and independence. Explanation of how these were met can be found in the “Results” section.

Phase 2: Qualitative analysis. Qualitative data for this study was analyzed using ATLAS Ti Qualitative Data Analysis and Research Software. Interview data was transferred from the recorder to a secure locked file on a locked computer. Data was then transcribed using Dragon Dictation Software, checked for accuracy, and input into ATLAS Ti for content analysis (Creswell & Plano Clark, 2011).

Content analysis. Content analysis was used for the qualitative analysis component of the study to reduce and make sense of the student and faculty interviews in order to identify consistencies and meanings (Patton, 2002). Content analysis aims to “facilitate the production of core constructs from textual data through a systematic method of reduction and analysis” (Priest, Roberts, & Woods, 2002, p. 36). Analysis for this study followed Bengtsson’s (2016) four stages of Decontextualization, Recontextualization, Categorisation, and Compilation:

Decontextualization: The researcher familiarizes themselves with the data to obtain a sense of the individual and the whole, developing codes that correspond to and represent the data in meaningful, efficient, ways. In this study, transcripts were initially read and reflected on individually to gain insight into the experiences of each student. Transcripts were then read again to obtain a sense of how these compared/contrasted with others. Themes of the data sets were extracted and initial codes and sub-codes were created from these in careful and thoughtful consideration of prior research, theory, and the research questions being asked. Coding development therefore took a deductive reasoning approach (Bengtsson, 2016.) A coding manual was then created, specifying the nature of the code and definitions (where needed). Coding was checked for reliability by a second researcher to ensure consistency in coding application across a selection of transcriptions (Bazeley, 2013). Once agreement on coding was reached, transcripts were uploaded into ATLAS Ti coding software, and codes were applied to the data to extract the various “meaning units” (participant insights needed by the researcher to be able to effectively answer the research questions”) associated with the phenomenon (Bengtsson, 2016).

Recontextualization: The researcher ensures that all critical content has been coded and captured. In this study, coded transcripts were re-read to confirm that the “meaning units” captured all information required for analysis, and that the codes applied accurately reflected the content included. Unmarked text (text that hadn’t been coded) was reconsidered for inclusion if determined to be of importance or excluded from analysis altogether.

Categorization: The researcher creates broad categories and themes from the coded data. In this study, codes were initially examined for saturation to determine thematic areas. Once saturation was determined, similar codes were grouped together to be considered for a broader category or theme. Themes were developed in relation to specific research questions asked in this study; saturated codes which fit into broader categories were assigned to connecting research questions in order to illuminate the themes related to each question.

Compilation: The researcher uses the broad categories and themes to conduct analysis and write-up of results. In this study, results were determined using a latent analysis approach to reflect the underlying meaning of categories and themes that emerged from the data. This type of approach “invites the researcher to immerse him/herself to some extent in the data in order to identify hidden meanings in the text” (Bengtsson, 2016). Themes and categories were illuminated through chosen “meaning units” (participant quotes) and were reflected on in relation to the research questions to uncover meaning behind participant responses (Bengtsson, 2016). Final themes and results were then considered in relation to current research literature to determine the validity of the interpretations.

Credibility. Qualitative data “have multiple stories to tell, and each person coming to the data brings with them their own purposes, perspectives, experience and knowledge” (Bazeley, 2013, p. 150). Issues around validity and reliability are thus pertinent to understanding the quality of results determined in qualitative inquiry. In this study, a primary goal was to “stay true” to participant perceptions, beliefs and opinions about learning and teaching in university contexts to achieve trustworthy results (Patton, 2002). The use of a content analysis approach helped to achieve this as the nature of this approach “provides a systematic and objective means to make valid inferences from verbal, visual, or written data in order to describe and quantify specific phenomenon” (Downe-Wambolt, 1992, p. 314). Nevertheless, actions were taken to maintain validity and reliability of results as much as possible.

Multiple coders. Codes and coding strategies in the qualitative portion of this study were cross-checked for accuracy in interpretation of the data by independent researchers for reliability and to contribute to the validity of the conclusions drawn from the codes (Bazeley, 2013). Codes were initially developed deductively using a sample of transcripts, theory, current literature, and the research questions, and then checked for accuracy and fit by a second researcher; any vagueness in the codes was clarified prior to coding the remaining transcripts (Bazeley, 2013). After discussion and agreement between researchers, a coding list with explanations and definitions was developed to further increase reliability in the coding scheme by minimizing “cognitive change” during analysis (Bengtsson, 2016).

Member checks. Member checks or respondent validation involves presenting the findings back to participants to determine the accuracy in the findings and enhance validity of the study (Creswell, 2008). Though the initial plan was to include member checks in this portion of the study, this did not occur because there was a significant time delay between data collection and data analysis. In conducting member checks in consideration of this factor would therefore constitute larger risks related to reliability, including the unreliability of informants’ memories and the tendency of individuals to deny specific (less attractive or socially unacceptable) aspects of their behavior over time (Bengtsson, 2016; Long & Johnson, 2000). Instead, an external audit was conducted by a second researcher in order to evaluate the soundness of the inferences being made and to judge the appropriateness of the results (Bengtsson, 2016; Creswell, 2008). In this process, a second researcher reviewed the congruency between the interview transcripts, the themes that emerged from the analysis of these, and the interpretation of results.

Mixed methods analysis. Mixed methods analysis took place once separate quantitative and qualitative data analyses were complete. Mixed methods interpretation “involves looking across the quantitative results and the qualitative findings and making an assessment of how the information addresses the mixed methods questions in a study” (Creswell & Plano Clark, 2011, p. 212). A convergent parallel mixed-methods analysis design involves analyzing the quantitative and qualitative databases separately and independently of each other at first, “merging” the results for comparison, and then interpreting to what extent these “converge, diverge from each other, relate to each other, and/or combine to create a better understanding in response to the study’s overall purpose” (Creswell & Plano Clark, 2011, p. 78).

Mixed methods model for analysis. Analysis procedures for the overarching study followed Creswell & Plano Clark's (2011) four stage model for implementing a convergent design:

Design: The quantitative and qualitative strands were designed and implemented. Quantitative data was collected through surveys; qualitative data was collected through interviews.

Analyze: Quantitative and qualitative data sets were analyzed separately. Quantitative data was analyzed using descriptive and inferential statistics; qualitative data was analyzed using a content analysis approach for theme development. .

Merge and Interpret: Quantitative and qualitative data sets were merged; content areas represented in both data sets were identified and then compared, contrasted, and synthesized. Similarities and differences were organized by theme. Results were summarized and interpreted separately and together to form a discussion of how the two types of data converge, diverge, relate to each other, and produce a more complete understanding of the phenomenon.

Credibility. The nature of the mixed-methods approach offers credibility to the analysis of results and the interpretation of findings (Teddlie & Tashakkori, 2003; 2009). Specifically, mixed-methods approaches offer a form of built-in triangulation; convergence and corroboration of results is achieved from different methods studying the same phenomenon (Johnson & Christensen, 2008). In this study, quantitative and qualitative methods were used for the purpose of complementarity; the results of the qualitative component offered means of elaboration, enhancement, and clarification to the results found in the quantitative component (Johnson & Christensen, 2008). The use of multiple methods, therefore, offers the research findings greater credibility and trustworthiness because of triangulation and the convergence of results (Johnson & Christensen, 2008).

Ethical Considerations

Ethical considerations should be primary in any research context; conducting ethical research requires researchers to actively interpret ethical principles and tailor ethical guidelines to the uniqueness of each and every research context (Creswell, 2008). As such, a number of ethical considerations were given to this study.

Informed consent. Participants in this study were required to take part in a detailed informed consent protocol (See D and I). Prior to data collection, participants were made aware of the purpose and aims of the study and how the results would be used. They were also provided with a copy of the research, survey and interview questions ahead of time. Participants were made aware of any risks or benefits that participation in this study might have entailed. Anticipated potential risks of this study included psychological stress and ostracism by peers through participation, while potential benefits included the winning of incentives planned for the encouragement of participation, becoming more aware of the issues found through this study, greater professional development opportunities for faculty, and improvement to systematic structure around disability legislation in the university environment. Legal rights and responsibilities were explained and participants had the right to refuse to participate and the right to withdrawal from the study without consequence at any time.

Privacy, confidentiality and anonymity. Personal information in this study was only collected if participants offered this information to the researcher on the initial quantitative survey to participate in the interview process. Surveys were therefore anonymous unless participants voluntarily provide personal information and interest to participate in the second phase of the study (qualitative interviews). Participants used www.qualtrics.com to access and complete the survey procedure in Phase 1 of the study, which ensures secure transmission of data through the enablement of the TLS (transport layer security) encryption feature, and the masking of participant IP addresses from the survey author. Anonymity is thus guaranteed through these features. Data obtained from the surveys was stored in a locked digital file, which was only accessible to the researcher.

For those that provided personal information on the surveys to participate in Phase 2 of the study, the researcher maintained confidentiality through non-disclosure of identifying information (i.e. real names, locations, personal details). Interviews took place in a private location that was accessible to all participants. Data collected from this phase included tape recordings, interview notes, and observations which were stored in a locked filing cabinet that was only be accessible to the researcher. Pseudonyms were used to protect confidentiality in the final research product.

The participant population and disability-related issues. In consideration of the

student population in my study, a mixed methods format could have potentially presented a number of unique challenges for some participants, given the nature of some learning disabilities and the impact of these on literacy skills, information processing and/or comprehension (Nind, 2008). There was a need for both the format and the administration process of this survey, therefore, to be flexible; additional and/or alternative protocols were considered (e.g. the use of a third party support person, a more multimodal or visually-structured survey design, or a switch to an interviewer administered process) but did not need to be employed (Nind, 2008). In terms of interview structure, I was considerate of the potential impact these might have on participation in terms of the communicative aspects that qualitative interviews entail. My interview strategies were adaptive to meet the needs of each individual involved in order for my participants to feel welcomed, supported, and engaged in the research process. Examples of this included providing the interview questions to students in written text format to have as we were moving through the questions, providing the interview protocol to students ahead of the interview to become comfortable and familiar with the content that was being asked, offering participants breaks in the interview process, and providing participants with as much time as was needed to fully outline their experiences (Nind, 2008).

The participant-researcher relationship and power differentials. Methodological considerations around relationship dynamics was also given to this study. Specifically, it was speculated that my position as a researcher may not be inviting to some of the informants from which I wish to learn; I may instead be viewed as a threat. In order to bridge the power differentials that may have occurred when conducting my study I made clear to participants my research goals, my identity, my biases, and my assumptions in order to establish a sound relationship and rapport with my research informants to learn from and with them about the issue in question (Brenner, 2006; Denzin & Lincoln, 2005). Specifically, I identified myself as an individual without a learning disability, who does not have direct experience or personal knowledge of the issues that individuals with learning disabilities may face in their learning endeavors. I also identified myself as an educator and researcher at the level of higher education, who has taken a personal interest in learning more about the challenges of those with learning disabilities to improve my own personal teaching practices and to improve the learning experiences of those with LD in my classrooms.

Methodological Justification: Personal Beliefs and Epistemology

My perspectives and beliefs around learning disabilities help to justify my theoretical stance and methodological approach. In recognizing that learning disabilities are biological in nature and affect core psychological processes that have implications for various aspects of an individual's life (LDAC, 2015; Perry, 2008), I firmly believe these difficulties can be remediated by environmental changes, support, and accommodations. The theories that I have chosen to draw on for my thesis project—Bronfenbrenner's (1977; 1998; 2006) bioecological model of human development and Tinto's (1975; 1993) model of student integration—support my beliefs strongly in their acknowledgment of the impact of the environment on human development and provide a well-structured lens through which to view and assess the research problems in question. The mixed methods approach in which I chose to employ allowed me both a broad view of the issue in question, as well as an in-depth understanding of the specific challenges faced by my research participants. Both quantitative and qualitative methods worked together to help gain a more holistic and thorough perspective of the issue.

Furthermore, I believe that the theoretical lens and methodological approaches in which I chose to frame my research study best suited my ontological and epistemological stances. As a post-positivist researcher with a background in psychology, I adhere to many concepts embedded within positivist traditions, but reject the notion of complete objectivity in knowledge acquisition and research. Instead, my beliefs coincide with Ritchie and Rigano (2001) who suggest that "truth is constructed through a dialogue; valid knowledge claims emerge as conflicting interpretations and action possibilities are discussed and negotiated among the members of a community" (p. 752). Research and inquiry is a situated, interpretive process that is "guided by the researcher's set of beliefs and feelings about the world and how it should be understood and studied" (Denzin & Lincoln, 2005, p. 22). The connection between epistemology, ontology, and methodology is central to conducting valid inquiry; the interpretive framework that encompasses these aspects of research guides the researcher's actions (Creswell, 2008; Denzin & Lincoln, 2005; Guba, 1990). The methodological procedures I chose to employ in my research study therefore must fit with my epistemological and ontological beliefs, my research purpose and questions, and my theoretical lens.

From a post-positivist perspective, I aimed to learn *from* and *with* my research participants about their learning experiences in real-life contexts, constructing truths around the issue at hand through interaction and dialogue (Ryan, 2006). In considering the nature of post-positivist research, my research purpose, and the complex nature of the research issue in question, I believe that the theoretical perspectives of Bronfenbrenner and Tinto, in conjunction with a mixed-methods approach, best suited my epistemological and ontological views, and my overall research goals (Creswell, 2008; Denzin & Lincoln, 2005; Ryan, 2006).

CHAPTER 4: QUANTITATIVE RESULTS

This chapter reports the quantitative results of the current study. First, a brief overview of how the data was prepared for statistical analysis is provided. Descriptions of the statistical procedures used are then explained and results obtained from these are outlined.

Preparing the Data

Quantitative data for this study was analyzed using SPSS Statistical Analysis Software. Survey data from Qualtrics was imported into SPSS (version 24) for descriptive and inferential quantitative analysis. Variables and measures were defined and set for each of the populations and their individual survey questions. Coding was reversed on questionnaire items that were negatively worded in each of the surveys to align with the positively worded items. See Appendix F and K.

Data for each population was visually screened for missing data and missing data percentages were calculated using descriptive statistics for each population. Benchmark references for missing data appear to fluctuate in the literature with most research suggesting 5-10% of missing data as an appropriate range without significant effects to the research findings. Schafer (1999) for example, asserts that a missing range of 5% or less is inconsequential, while Bennett (2001) suggests that statistical analysis is only likely to be biased when 10% of data are missing. For the student survey, a total 6.4% of data to be missing from the *SPFPQ*. Most missing items were sporadically spread out over the cases and variables and appeared to be at random. For the faculty survey, a total of 1.03% of the data was missing from the *FPQ*. There were no evident patterns in the missing data by case or variable, so it was inferred that the missing data of the *FPQ* was also at random. Because the missing data percentages within each of these populations fell within recommended limits, missing data values for each sample in this study were simply coded as “missing” (e.g. -99) in SPSS and left as is to be excluded from analysis when required.

Descriptive Statistics

Descriptive statistics were calculated using the raw scores for demographics on each of the surveys. Descriptive statistics for the student sample examined variables of gender, faculty/department of which they belonged, and year of program. Descriptive statistics for the

faculty sample examined variables of gender, faculty/department of which they belonged, years teaching at the university level, faculty position type, and faculty rank. Variables that encompassed many categories (e.g. faculty/department: education, arts and humanities, business, science, etc.) were reduced to form broader categories within the variable (e.g. faculty/department: social sciences vs. sciences and math¹) for ease of analysis. The variable of faculty/department specifically was also reduced to the categories of social sciences and sciences/math for comparison to other research that examines these categories (Rao, 2002; Swart & Greyling, 2011). Descriptive statistics were used to describe each of the samples included in this study.

Inferential Statistics: Checking Assumptions of Data

Prior to conducting inferential statistics involving the use of parametric tests (i.e. ANOVA—analysis of variance), three key assumptions of the data must be met: the data must be normally distributed, the variances of the sample populations must be similar (homogeneity of variance), and the data of one participant must be independent of others (the behaviour of one participant does not influence other participants) (Field, 2009).

Independence. The third assumption, independence of data, was achieved through the sample design; specifically, the data sets are independent of one another (i.e. not a repeated measures design) and within these, the behaviour of one participant does not influence the behaviour of another (Field, 2009).

Normality. Normality of the data was examined by visual analysis and statistical testing. Specifically, this was examined by visual analysis of the frequency distributions of each of the composite scales. Measures of central tendency (mean, median, mode), dispersion of the scores (standard deviation, variance, range and standard error), and distribution (skewness and kurtosis) were examined alongside of histograms depicting the data against a normally distributed curve and Q-Q plots, (probability plots which compare the data against a normally distributed set of data) (Field, 2009).

¹ Departments/faculties were grouped by larger categories of Social Sciences or Sciences/Math. Social Sciences faculties included: Arts and Humanities, Education, Law, Media Studies, Music, Social Sciences. Science/Math faculties included: Business, Engineering, Health Sciences, Medicine and Dentistry, Science.

Student survey. Initial analysis of the student subscales (*SPFPQ* knowledge and *SPFPQ* attitude) revealed that the scores on the knowledge and attitude subscales were both normally distributed. A Kolmogorov-Smirnov test of normality confirmed normal distribution of the scores on each scale statistically, with the student scores on the knowledge subscale indicating that $D(60) = 0.065, p > 0.05$, and the student scores on the attitude subscale indicating that $D(60) = 0.070, p > 0.05$.

Faculty survey. Initial analysis of the faculty scales (*FPQ* knowledge and *FPQ* attitude) revealed that the scores on the knowledge subscale were normally distributed, but the scores on the attitude subscale were negatively skewed. A Kolmogorov-Smirnov test of normality confirmed normal distribution of the scores knowledge scale indicating that $D(125) = 0.048, p > 0.05$, and non-normal distribution of the scores on the attitude scale indicating that $D(127) = 0.107, p < 0.001$.

Homogeneity of variance. Variance between the groups (faculty, students) was then examined to test for homogeneity of variance using Levene's test. For the scores on the knowledge subscale, the variances were not significant (the scores were similar for faculty and for students) $F(1, 183) = 1.67, p > 0.05$ but for the scores on the attitude subscale, the variances were significant (the scores were not similar for faculty and for students) $F(1, 185) = 10.529, p < 0.001$.

Inferential Statistics: Applying Log Transformations

Prior to moving forward with parametric testing, the problems in the data (non-normal distribution in the *FPQ* attitude subscale, and the lack of homogeneity of variance between faculty and students on the *SPFPQ* and *FPQ* subscales) required correction. Field (2009) suggested that one way to do this was through data transformation, which reduces the skew and impact of outliers on the data. A log transformation with reflection was therefore applied to the four subscales in question (*SPFPQ* knowledge, *SPFPQ* attitude, *FPQ* knowledge, *FPQ* attitude) to reduce the negative skew in the data in order to meet the assumptions of inferential statistics and parametric tests (Field, 2009). While transformation does not change the relationship between variables (i.e. subscales), it does change the differences between variables because it changes the units of measurement; all scales used for inferential statistical testing in this study, therefore, were transformed for consistency in units of measurement (Field, 2009).

Normality. Once log transformations were complete for all scales, the assumption of normality was re-tested using the same procedures as previously described.

Student survey. Subsequent analysis of the student scales (*SPFPQ* knowledge and *SPFPQ* attitude) after transformation revealed that the scores on the knowledge subscale were now negatively skewed (not normally distributed) but the scores on the attitude subscales remained normally distributed. A Kolmogorov-Smirnov test of normality confirmed the distribution of the scores on each scale statistically, with the student scores on the knowledge subscale indicating that $D(60) = 0.116, p > 0.05$, and the student scores on the attitude subscale indicating that $D(60) = 0.094, p > 0.05$. Further visual analysis of the statistical output revealed that there was an outlier in the knowledge data that was contributing to the negative skew ($M = 0.00$). The outlier was removed and a Kolmogorov-Smirnov test of normality was run again on the knowledge and attitude subscales. After removing the outlier entirely for parametric testing, normality was confirmed for both subscales, indicating that $D(59) = 0.082, p > 0.05$ for the knowledge subscale, and $D(59) = 0.094, p > 0.05$ for the attitude subscale.

Faculty survey. Subsequent analysis of the faculty scales (*FPQ* knowledge and *FPQ* attitude) after transformation revealed that the scores on the knowledge and attitude subscales were now both normally distributed. A Kolmogorov-Smirnov test of normality confirmed normal distribution of the scores on the knowledge scale indicating that $D(125) = 0.067, p > 0.05$, and normal distribution of the scores on the attitude scale indicating that $D(127) = 0.055, p > 0.05$.

Homogeneity of variance. Variance between the groups (faculty, students) was then again examined to test for homogeneity of variance using Levene's test. For the scores on both subscales, the variances were not significant (the scores were similar for faculty and for students) with the knowledge subscale indicating $F(1, 182) = 1.068, p > 0.05$ and the attitude subscale indicating $F(1, 184) = 0.936, p > 0.05$.

Inferential Statistics: Analysis of Variance (ANOVA)

Once the three assumptions of parametric data were met (i.e. normal distribution of data, homogeneity of variance, and independence of data), analysis of variance (ANOVA) was used for further quantitative analysis to analyze the differences amongst group means in more than two conditions/variables (Field, 2009). Specifically, of interest for this study, ANOVA was used

to analyze the faculty population independently in terms of various conditions (independent/dependent variables), and also to see comparisons between the faculty population and the student population in terms of various conditions. For the faculty population, knowledge and attitudes were examined to see if there were differences in terms of years of teaching (if faculty members' perceptions differed based on how many years they had taught at the university level), position type (if faculty members' perceptions differed based on what type of position the individual held), faculty rank (if faculty members' perceptions differed based on order of rank of position), and faculty/department (if faculty members' perceptions differed by department). Post hoc procedures (Gabriel's pairwise test) were then used to conduct an analysis of the specific differences within each group where needed (i.e. how and where the differences occurred in each grouping of years of teaching, position type, faculty rank, and faculty/department). Gabriel's pairwise test was chosen for this procedure because it is designed to cope with situations where sample sizes are different, and the sample sizes in the various groups being tested did vary. Differences in knowledge and attitudes in the student population specifically were not examined as the numbers of participants in individual groups (e.g. year of program, faculty/department) did not allow for comparison; there were a disproportionate number of individuals in each grouping. Differences between faculty and students in knowledge and attitudes were examined to see whether perceptions of the two populations were consistent, or whether they varied and where these variations occurred (differences between faculty members and students based on faculty/department).

ANOVA: Faculty, years of teaching. A one-way ANOVA was conducted to investigate the differences in knowledge and attitudes in faculty members based on the number of years of teaching at the university level. ANOVA conducted to explore the differences in these groups revealed a significant difference in the mean knowledge scores based on years of teaching $F(4, 120) = 3.154, p = 0.017$. Gabriel's post-hoc test revealed that there were statistically significant differences in knowledge ($p = 0.017$) between faculty with 0-5 years of teaching experience ($M = 3.35, SD = .763$) and faculty with 15-20 years of experience ($M = 4.19, SD = .835$) where faculty with 15-20 years of experience felt more knowledgeable than faculty with 0-5 years of experience but no statistically significant differences in knowledge between other groupings. See Table 5. No significant difference in the mean attitude scores were detected based on years of teaching $F(4, 122) = 2.290, p = 0.064$. See Table 6.

Table 5

Mean Scores: Faculty Knowledge by Years of Teaching

<u>Years of Teaching</u>	<u>N</u>	<u>Mean Knowledge Score</u>	<u>SD</u>
0-5 Years	18	3.35 ^a	.763
5-10 Years	21	3.73 ^{ab}	.862
10-15 Years	25	3.99 ^{ab}	.941
15-20 Years	18	4.19 ^b	.835
20+ Years	43	3.76 ^{ab}	.682
Total	125	3.80	.828

Notes: Means that have no superscript in common are significantly different from each other ($p=0.017$).

Scale reference for mean scores: 1= strongly disagree, 6=strongly agree.

Table 6

Mean Scores: Faculty Attitude by Years of Teaching

<u>Years of Teaching</u>	<u>N</u>	<u>Mean Attitude Score</u>	<u>SD</u>
0-5 Years	18	4.46	1.023
5-10 Years	21	4.60	.872
10-15 Years	25	4.83	.779
15-20 Years	19	5.15	.536
20+ Years	44	4.65	.735
Total	127	4.72	.804

Notes: Means without superscript are non-significant.

Scale reference for mean scores: 1= strongly disagree, 6=strongly agree.

ANOVA: Faculty, position type. A one-way ANOVA was conducted to investigate the differences in knowledge and attitudes in faculty members based on position type at the university. A significant difference in the knowledge scores based on position type $F(2, 122)=3.678, p=0.026$ was found. Gabriel's post-hoc test revealed that there were statistically significant differences ($p=0.026$) between faculty members in tenure-track positions ($M=3.42, SD=.837$) and faculty members in the "other" category ($M=4.03, SD=.859$) where faculty in the "other" category felt more knowledgeable than faculty in tenure-track positions but no

statistically significant differences between other groupings. See Table 7. No significant difference in the attitude scores based on position type emerged $F(2, 124) = 1.147, p = 0.321$. See Table 8.

Table 7

Mean Scores: Faculty Knowledge by Position Type

<u>Position Type</u>	<u>N</u>	<u>Mean Knowledge Score</u>	<u>SD</u>
Tenured	77	3.85 ^{ab}	.786
Tenure Track	24	3.42 ^a	.837
Other (Instructors/ Lecturers/Adjunct)	24	4.03 ^b	.859
Total	125	3.80	.828

Notes: Means that have no superscript in common are significantly different from each other ($p = 0.026$).

Scale reference for mean scores: 1 = strongly disagree, 6 = strongly agree.

Table 8

Mean Scores: Faculty Attitude by Position Type

<u>Position Type</u>	<u>N</u>	<u>Mean Attitude Score</u>	<u>SD</u>
Tenured	79	4.80	.705
Tenure Track	24	4.44	1.091
Other	24	4.75	.747
Total	127	4.72	.804

Notes: Means without superscript are non significant.

Scale reference for mean scores: 1 = strongly disagree, 6 = strongly agree.

ANOVA: Faculty, faculty rank. A one-way ANOVA was conducted to investigate the differences in knowledge and attitudes in faculty members based on faculty rank at the university. No significant differences in the mean knowledge scores were found based on faculty rank $F(3, 121) = 1.300, p = 0.278$. See Table 9. No significant differences on attitude scores were found based on faculty rank $F(3, 123) = .489, p = 0.691$. See Table 10.

Table 9

Mean Scores: Faculty Knowledge by Faculty Rank

<u>Faculty Rank</u>	<u>N</u>	<u>Mean Knowledge Score</u>	<u>SD</u>
Full Professor	35	3.78	.741
Associate Professor	46	3.91	.792
Assistant Professor	29	3.54	.945
Instructor/ Lecturer	15	4.03	.832
Total	125	3.80	.828

*Notes: Means without superscript are non significant.
Scale reference for mean scores: 1= strongly disagree, 6=strongly agree.*

Table 10

Mean Scores: Faculty Attitude by Faculty Rank

<u>Faculty Rank</u>	<u>N</u>	<u>Mean Attitude Score</u>	<u>SD</u>
Full Professor	35	4.78	.790
Associate Professor	48	4.81	.644
Assistant Professor	29	4.51	1.049
Instructor/ Lecturer	15	4.74	.763
Total	127	4.72	.804

*Notes: Means without superscript are non significant.
Scale reference for mean scores: 1= strongly disagree, 6=strongly agree.*

ANOVA: Faculty, faculty/department. A one-way ANOVA was conducted to investigate the differences in knowledge and attitudes in faculty members based on the respective faculty/department in which they taught at the university. There was a significant difference in the knowledge scores based on faculty/department $F(1, 123) = 10.051, p = 0.002$, where faculty in social sciences ($M = 4.01, SD = .857$) scored higher than those in sciences/math ($M = 3.59, SD = .743$). See Table 11. No significant differences in attitude scores were found based on faculty/department $F(1, 125) = 1.330, p = 0.251$. See Table 12.

Table 11

Mean Scores: Faculty Knowledge by Faculty/Department

<u>Faculty/Department</u>	<u>N</u>	<u>Mean Knowledge Score</u>	<u>SD</u>
Social Sciences	64	4.01 ^a	.857
Sciences and Math	61	3.59 ^b	.743
Total	125	3.80	.828

Notes: Means that have no superscript in common are significantly different from each other ($p=0.002$).
Scale reference for mean scores: 1= strongly disagree, 6=strongly agree.

Table 12

Mean Scores: Faculty Attitude by Faculty/ Department

<u>Faculty/Department</u>	<u>N</u>	<u>Mean Attitude Score</u>	<u>SD</u>
Social Sciences	65	4.78	.906
Sciences and Math	62	4.67	.685
Total	127	4.72	.804

Notes: Means without superscript are non significant.
Scale reference for mean scores: 1= strongly disagree, 6=strongly agree.

Factorial ANOVA: Faculty and Students by Faculty/Department. A factorial ANOVA was conducted to investigate the differences in knowledge and attitudes between faculty members and students based on the respective faculty/department to which they belonged at the university.

Knowledge and attitude by participant (faculty or student). There was a main effect for group (faculty versus students) in the knowledge scores $F(1, 180) = 5.979, p = 0.015$ and a main effect for group (faculty versus students) in the attitude scores $F(1, 182) = 26.923, p = 0.000$, where faculty (generally) felt more knowledgeable and felt they had more positive attitudes toward students with LD than students felt they did. See Table 13 and Table 14.

Table 13

Mean Scores: Knowledge by Participant (Faculty or Student)

<u>Participant</u>	<u>N</u>	<u>Mean Knowledge Score</u>	<u>SD</u>
Faculty	125	3.80 ^a	.828
Student	59	3.31 ^b	.843
Total	184	3.64	.861

*Notes: Means that have no superscript in common are significantly different from each other (p=0.015).
Scale reference for mean scores: 1= strongly disagree, 6=strongly agree.*

Table 14

Mean Scores: Attitude by Participant (Faculty or Student)

<u>Participant</u>	<u>N</u>	<u>Mean Attitude Score</u>	<u>SD</u>
Faculty	127	4.72 ^a	.804
Student	59	3.91 ^b	1.100
Total	186	4.47	.982

*Notes: Means that have no superscript in common are significantly different from each other (p=0.000).
Scale reference for mean scores: 1= strongly disagree, 6=strongly agree.*

Knowledge and attitude by faculty/department (all participants). Further, the factorial ANOVA found no main effect for knowledge scores by faculty/department $F(1, 180) = .493, p = .483$ and no main effect in the attitude scores by faculty/department $F(1, 182) = 3.697, p = 0.056$. See Table 15 and Table 16.

Table 15

Mean Scores: Knowledge by Faculty/Department (All participants)

<u>Faculty/Department</u>	<u>N</u>	<u>Mean Knowledge Score</u>	<u>SD</u>
Social Sciences	112	3.69	.915
Sciences and Math	72	3.58	.771
Total	184	3.64	.861

*Notes: Means without superscript are non significant.
Scale reference for mean scores: 1= strongly disagree, 6=strongly agree.*

Table 16

Mean Scores: Attitude by Faculty/Department (All participants)

<u>Faculty/Department</u>	<u>N</u>	<u>Mean Attitude Score</u>	<u>SD</u>
Social Sciences	113	4.45	1.058
Sciences and Math	73	4.49	.858
Total	186	4.47	.982

Notes: Means without superscript are non significant.

Scale reference for mean scores: 1= strongly disagree, 6=strongly agree.

Knowledge and attitude by faculty or students in respective departments. Last, the factorial ANOVA found a statistically significant interaction between group (faculty/students) by faculty/department on knowledge scores $F(1, 180) = 5.497, p = 0.02$ where faculty in social sciences ($M = 4.01, SD = .857$) felt more knowledgeable than their students felt they were ($M = 3.27, SD = .821$) but there was no difference in how knowledgeable faculty and students saw faculty in Sciences/Maths. See Table 17 and Figure 3. There was no statistically significant interaction between group (faculty/students) by faculty/department on attitude scores $F(1, 182) = .791, p = .375$. See Table 18.

Table 17

Mean Scores: Interactions between Faculty/Students on Knowledge by Faculty/Department

Participant	N	Social Sciences		Sciences/Maths	
		<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>
Faculty	125	4.01	.857	3.59	.743
Students	59	3.27	.821	3.52	.946

Notes: Scale reference for mean scores: 1= strongly disagree, 6=strongly agree.

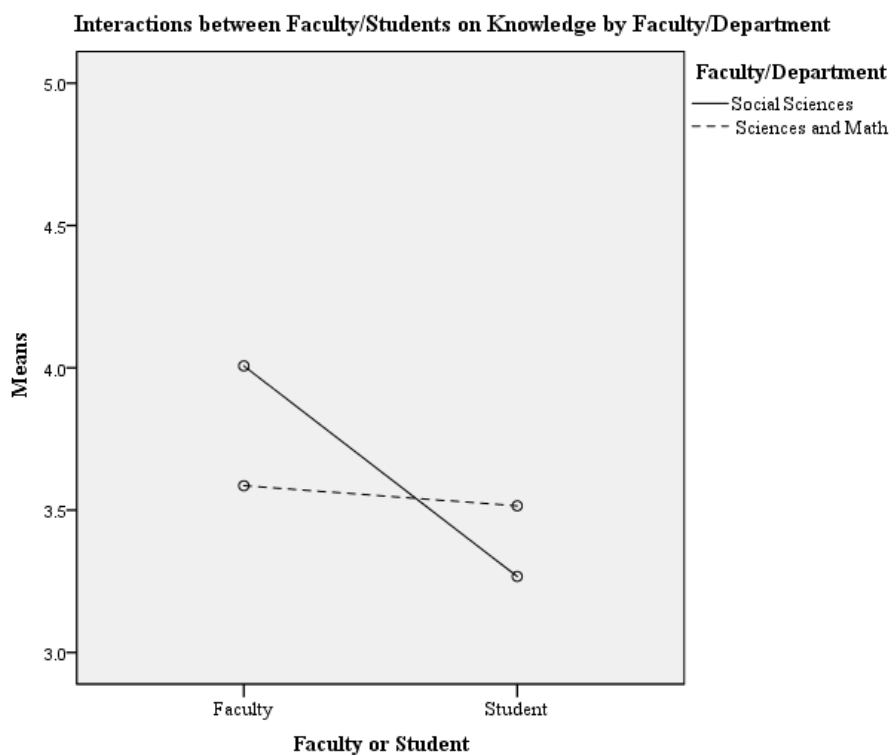


Figure 3. Interaction between faculty/students on knowledge by faculty/department. This graph illustrates the interaction of mean scores of faculty and students by department (Social Sciences/Sciences and Math) on the knowledge subscale.

Table 18

Mean Scores: Interactions between Faculty/Students on Attitude by Faculty/Department

Participant	N	Social Sciences		Sciences/Maths	
		Mean	SD	Mean	SD
Faculty	127	4.78	.906	4.67	.804
Students	59	4.01	1.096	3.49	1.065

Notes: Means without superscript are non significant.

Scale reference for mean scores: 1= strongly disagree, 6=strongly agree.

CHAPTER 5: QUALITATIVE RESULTS

This chapter reports the qualitative results of the current study. First, qualitative results and themes of the students are presented. Next, qualitative results and themes of the faculty are presented.

Preparing the Data

Qualitative data for this study was analyzed using ATLAS Ti Qualitative Data Analysis and Research Software. Interview data was transferred from the recorder to a secure locked file on a locked computer. Data was then transcribed using Dragon Dictation Software, checked for accuracy, and input into ATLAS Ti for content analysis (see Chapter 3: Methods for process of analysis) (Creswell & Plano Clark, 2011).

Qualitative Results and Themes: Students

From the content analysis of student interviews, several common themes emerged from the data around key aspects of perceptions of instructor/professor preparedness, challenges in the classroom, challenges with the disability service office (DSO), additional challenges in the university environment, and impacts on learning and the student experience. See Table 19.

Table 19

Qualitative Themes: Students

Theme	Sub-Theme
Perceptions of instructor/professor preparedness	
Challenges in the classroom	<ul style="list-style-type: none"> – Learning format/teaching style – Obtaining accommodations – Professor attitudes and approachability – Supportive practices in the classroom
Challenges with the disability services office (DSO)	<ul style="list-style-type: none"> – Obtaining accommodation – The accommodation procedure – Supportive practices in the DSO
Additional challenges in the university environment	<ul style="list-style-type: none"> – Stigma and self-disclosure – Self-disclosure for graduate students – Obtaining accommodations for experiential learning – Other supports within and outside of the university
Impacts on learning and the student experience	<ul style="list-style-type: none"> – Experiences with professors – Experiences with the DSO – Experiences with peers

Perceptions of instructor/professor preparedness. Generally, students had varying perceptions of whether they felt their instructors/professors were prepared to meet the needs of students with LD in classroom settings. Perceptions of preparedness appeared to depend on a number of different factors for students, including professor knowledge of LD, professor experience with students with LD, professor use of teaching strategies, and the department/faculty from which the professor was affiliated.

Perceptions also seemed largely dependent on what types of experiences students had with professors in the university setting; if a student had mostly positive experiences with professors in their learning experiences, they tended to feel that their professors were prepared to meet their specific learning needs, while if a student had mostly negative experiences with professors, they tended to feel that professors were not prepared to meet the needs of students with LD.

Knowledge and experience appeared to be a key factors in determining preparedness of instructors for most students. Specifically, only some students felt that their professors had the professional knowledge of LD (knowledge of issues related to LD, knowledge of how LD translated in the learning environment, knowledge of appropriate practices) to be prepared to meet the needs of students with LD in their classrooms. In certain cases, this was connected to what type of experience/training they had and what department/faculty² they came from. For instance, when asked if she felt her instructors were prepared to meet the needs of students with LD, Becca, an undergraduate student in Science/Math says:

Like all of them knew about it...The professors kind of have a good idea and they've dealt with the...like a lot of them are really experienced with that. I think also because I'm in (Science/Math), my professors probably like, care more about that kinda stuff than some other ones. I feel like, yeah. (Becca)

Similarly, Rachel, a graduate student in Science/Math suggests:

² Departments/faculties were grouped by larger categories of Social Sciences or Sciences/Math. Social Sciences faculties included: Arts and Humanities, Education, Law, Media Studies, Music, Social Sciences. Science/Math faculties included: Business, Engineering, Health Sciences, Medicine and Dentistry, Science.

Yes, some professors are adequately prepared to support learning needs because they really...and again I speak from a professional perspective within my program...yes some of them are and it's because they live what they preach and they believe in what they are actually teaching students. (Rachel)

For other students, teaching practices, teaching style, and how differentiated instruction/learning techniques were implemented in teaching were important factors in considering instructor preparedness. Karen, a graduate student in Science/Math says:

Sometimes you have professors that are just really good at explaining things in a coherent way and speak slowly and those professors are the professors that I learn best from but then you also have the professors who do not lecture in that way or do not lecture with PowerPoint notes or do not post notes before hand and I'm not saying that their style doesn't work for other students with learning disabilities but for me it doesn't work for me in my learning style. But I think I have learned to kind of work around that I don't know if it's preparedness in terms of teaching in a way that would be good for students with learning disability, it's just that some professors are better at lecturing and some professors assist their students more than other professors. (Karen)

Similarly, Rachel suggests:

Some professors are not adequately prepared to support learning needs and I think that really goes down to having very strict policies about their teaching pedagogy, you know "I am not going to provide lecture notes or lecture slides before class because I don't want it to be distracting to the students, I don't want laptops in my classes because that will be distracting". (Rachel, graduate student, Science/Math).

For students who felt their professors were not prepared to meet the needs of students with LD in their classrooms, two main themes prevailed as to why this was the case: a lack of knowledge of learning disabilities and a lack of understanding of LD-related issues.

For the most part I found that most teachers don't really understand disabilities. They don't comprehend them...they don't grasp them. (Paolo, undergraduate student, Social Science).

I think in certain instances outside of my discipline those who aren't just really don't understand how to work with students who have learning disabilities and what a learning disability is and what an accommodation is. They don't understand the philosophy behind it so there definitely needs to be more advocacy and education to outreach to these people and to these instructors so that they can develop that mind frame that accommodations are not about favoritism, it's an issue of equity not an issue of equality--this is a needs-based thing and this person needs this to be able to access the service. (Rachel, graduate student, Science/Math).

They are not like a (DSO) counselor- they don't know...they're not trained in learning disability stuff at all. They are sent an email I know, they are sent an email at this start of the term saying that there's someone like me (but it doesn't identify me with...issues) in your class—please accommodate them with such and such accommodations and it probably gives some of the explanations in the email of how to book the test a test blah blah blah...but yeah I find that in terms of knowledge about learning disabilities-no- a definite no. But in terms of accommodating what they're told to accommodate, most of them—yes. Some of them definitely no. (Lance, undergraduate student, Social Science).

I think that teachers do what they can when they can, but they don't understand how it impacts another person. They don't really know how to adapt to it. And they don't because I find the majority of teachers don't have disabilities and if they do they don't disclose them. And to me, if you're teaching somebody and they don't know how that's affecting that other person, they don't know how to adapt. And the school system doesn't tell them to adapt. (Paolo, undergraduate student, Social Science).

I don't know how much experience or knowledge the professors really have about LD because we don't... We don't really talk about it I think it's one of those elephant in the room kind of things where we don't mention when a student has LD. (Shannon, undergraduate student, Social Science).

Overall, it was quite evident that some students had reservations about the amount of LD-related knowledge and supportive teaching skills instructors and professors had at the university level; this appeared to impact on students' perceptions of how prepared instructors and professors were in meeting the needs of students with LD in university classrooms. Some students, overall, felt that their instructors/professors were not prepared to meet the needs of students with LD in university settings because of the limited amount of knowledge in which they possessed.

Challenges in the classroom. Students reported dealing with a number of challenges within the immediate classroom environment, including accessing learning material through specific learning formats, obtaining accommodations from their professors, and perceptions of negative attitudes by professors/instructors.

Learning format/teaching style. A primary theme throughout the student interviews were the challenges that students with learning disabilities faced in relation to the learning format of both higher education (generally) and of teaching/learning practices of individual professors/instructors (specifically). In general, almost all students seemed to struggle in one way or another with the “typical” university lecture format; for those who struggled with concentration and processing speed challenges, the length of the lecture, limited number of breaks, and large class size (number of distractions) appeared to be one of the biggest challenges. Karen and Shannon both discuss the anxiety related to learning in lectures:

I think the anxiety pushes me to work really hard but a lot of the time, especially in lecture style, I will get really really anxious because I'm not understanding what's going on and that kind of snowballs into this panic attack type thing and I think that is also related to the professors who expect people to participate in class. One thing that I think that professors don't understand is that because I process slower it's very hard for me to keep up with what's said and then to be able to talk (about it) and so that kind of learning style gives me a lot of anxiety and I have actually having panic attacks in classes like that. And so that's the one time that I feel that maybe professors should be aware that there are students who even though they're listening, they're actively trying to understand what's going on and it's very difficult for them to contribute.” (Karen, graduate student, Science/Math).

The anxiety of feeling that I've missed something in class...--the feeling that I've missed something important and didn't write it down because I know that I had I went off in ‘Lala land’ for a couple minutes and it's like "what if there is something important that I missed”? (Shannon, undergraduate student, Social Sciences).

Additional challenges noted around teaching style included the rate at which the professor spoke/gave information, the amount of visual materials/media used (including access to notes/PowerPoint slides ahead of the lecture), and the amount of interaction/activity time also seemed to have an impact on how well students were able to process and retain information; the more engaging the lecture was, the more effectively students with processing challenges were able to learn.

Assessment structure at the university level also brought some challenges with these participants. For those with difficulties associated with retaining information, the heavy emphasis placed on formal testing (typically in the form of timed mid-terms and final exams) was a significant challenge. Specifically, testing time (amount of time given to individuals to

complete the test), testing format (selected response questions vs. constructed response questions), and the amount of rote memorization required to complete tests in general appeared to cause a considerable amount of anxiety in these participants. Clarity in test-question construction and the lack of immediate access to professors/instructors for clarification during testing times (e.g. if writing in a separate room) was also cause for concern.

Strategies that students used to assist in managing classroom-related challenges included reading course material thoroughly ahead of time, printing lecture slides/notes prior to lecture to have while taking notes, note-taking to stay focused during lectures, recording lectures, sitting in a specific area of the classroom to be more accessible to the instructor or to avoid distractions (e.g. at the front of class, on one specific side of class, not facing a window, etc.), and self-advocating their needs to their instructors ahead of lectures. Strategies for assessment included time management (studying, prioritizing academics over social events, etc.), attending workshops to improve on specific study skills and test-writing skills, ensuring a quiet work/study space (library, private room, etc.). General strategies to improve learning included attending professor/TA office hours for one-one support, tutoring, taking a reduced course-load, and using peers for support (communicating understanding, notes, study sessions, etc.). Additionally, an interesting strategy noted by a few participants included the idea of self-teaching. Karen explains:

I don't think that I excel in classroom learning whereas as long as I'm given enough time and I can go home and figure it out by myself then I do a lot better and I learn the material a lot better. (Karen, graduate student, Science/Math).

Despite the array of strategies employed by students, the general “feeling” of the students regarding the learning format/ structure in the higher education setting was that it was not tailored to the individual learning needs of the students within the classroom. Paolo summarizes this by stating:

The only thing that I have problems with in terms of education is the fact that they don't—and I know it would be difficult—would be to adapt it to the individual. It is all like a processing system. It's all a cookie cutter process. You know, like you get 30 or 40 kids in a class and they hand them out the same test and they are supposed to—like Pillsbury dough—everyone is supposed to come out the same. But humans are individuals. None of us think the same, dress the same...and the education system is still trying to do the same old, same old. And the problem with that is that people from different countries or our nationality rather is changing so much—it's so dynamic—you can't expect people to learn this same way. It doesn't happen. But I don't think the education system supports that because they don't give the teachers or the professors the time to do this kind of stuff...There is never enough money, time, resources for teaching—that is the problem. (Paolo, undergraduate student, Social Science).

Obtaining accommodations. Some participants noted also the difficulty in obtaining appropriate (and timely) accommodations from their professors as a main challenge. Though it was noted that most instructors willingly provided the accommodations as set out by the Disability Service Office (DSO) (e.g. extra exam time, change of location for test-writing/exams, use of technology, etc.), it was generally perceived that professors/instructors were unwilling to go “above and beyond” what was set out by the DSO. Students tended to attribute this difficulty to one of three things: the professors' lack of knowledge of appropriate accommodations and how to implement these effectively, their lack of understanding of LD, and/or their hesitation/unwillingness to implement accommodations for fear of losing some form of academic integrity. Paulo, for example, states:

I would say that they (professors) support with what they have. I don't think they can support with what they don't understand. So basically, if the system says that they give you extra time or that you're allowed to have a cheat sheet, they adhere to the policy of the process. Whether they actually understand what a disability is—I don't think most of them do. I think most of them think that these are the rules and requirements that most of them have to adhere to to make sure that they behold the human rights code and that is what they'll do but whether they actually or could go beyond that to instruct the person in a different way... For example, if the only way to give a test is by true/false and multiple choice and the person doesn't do well on the true/false and multiple choice format, would the school system be able to do a different way of teaching them or (of) doing a test? They don't. They don't adapt to that....So in the school system, they'll adapt to whatever they are told how to be adaptable or how to be accommodated. Whether they go beyond that, I don't think they have the capabilities or the desire to do that. (Paolo, undergraduate student, Social Science).

A specific area of concern for some students was professors' inflexibility in accommodating through their teaching practices, testing procedures, and/or structure of learning. Rachel (Science/Math) for example, described an instance where a professor refused to share copies of his PowerPoint slides ahead of class. Lance (Social Science) recalled a time where he had requested extra time on a take-home assignment, but his request was refused because the assignment was not a traditional (formal) means of testing. Testing formats also prove to be problematic: Tara (Social Science- Education) and Shannon (Social Science) both outlined situations where they asked their professors to modify a test format to suit their learning needs and capabilities more appropriately, but were dismissed; Rachel (Science/Math) recalled an exam situation where (with her time-and-a-half accommodation) her exam would have totaled the time of six hours and her professor refused to split her exam time over the period of two days; and Paolo and Tara (both Social Science) both describe situations where they were hesitantly given the accommodation of a "cheat sheet" to accommodate for a specific formal testing format, but their professors placed very strict conditions on the use of this.

Professor attitudes and approachability. Professor attitude and approachability proved to be the third main challenge that students with LD faced in the classroom environment. This particular difficulty often appeared to be connected to the professor's willingness to employ the use of accommodations. Some students, for example, suggested that professors were often inflexible in modifying their teaching/learning practices or unreceptive to providing support beyond the accommodations listed by the DSO, which was perceived (by students) to be connected to professors' personal opinions of either learning disabilities and/or the use of accommodations (e.g. that their professor either did not believe in learning disabilities, or that their professor did not believe in the need for accommodations). Lance (Social Science) recalled a time where he made a request for a specific accommodation from an instructor and was made to feel as if he was "cheating or something" by the professor; Paolo (Social Science) says he often got the feeling that professors' perceptions of students with learning disabilities were that they were "lazy" or "not applying themselves" enough; Tara (Social Science) described a time where she "felt defeated" for having to involve the DSO on multiple occasions in her dealings with one professor around the execution of certain accommodations because he wouldn't listen to her needs directly: "I had to go to a higher level for him to accept anything". Most students who

recalled experiences such as these also reported feeling discouraged from seeking the support they needed in the future from professors.

Interestingly, other students acknowledged that if they did require some level of assistance beyond the instructor's capabilities, they felt most instructors would be willing to try to help as much possible or seek outside assistance as needed:

I'm sure if I went up and said you know I have a learning disability and I'm finding it really difficult I'm sure that they would've been willing to help in any way that they could have. (Karen, graduate student, Science/Math)

If you mention something to a professor they seem to be more than happy to accommodate in some way. (Shannon, undergraduate student, Social Science)

I think that if I did have to get help with anything that they would generally be pretty understanding. (Marley, undergraduate student, Social Science)

Some students also noted a noticeable difference in professor/instructor attitude by the department/faculty to which the instructor/professor belonged. Karen (Science/Math), Rachel (Science/Math), Becca (Science/Math), Shannon (Social Science) and Tara (Social Science), all noted at one point or another during interviews that they believed professors and instructors teaching in social sciences and those in the "helping profession" sciences (e.g. psychology, health sciences) had more positive attitudes towards students with LD and more knowledge in terms of meeting the needs of students with LD (teaching/learning) than professors and instructors teaching in science and math related programs and "non-helping" profession social sciences (e.g. economics, political science, etc.). This perceived difference in knowledge/attitude tended to be attributed to the professor's background knowledge/understanding of LD; professors in the humanities and "helping professions" were perceived to have a better understanding of LD because of their professional competencies (e.g. they taught about disability or worked in a field that required an understanding of disability) or because they had more familiarity in teaching students with disabilities than those in science/math and "non-helping professions" did. Karen, for example, felt that:

“The closer you got to more like social work or social scientists they had kind of a better...maybe not understanding...but that they were more inclusive of people with disabilities and learning disabilities, whereas when you got into the harder sciences, political science, and that kind of thing they were less accommodating and less interested in kind of changing their style to accommodate”. (Karen, graduate student, Science/Math)

Overall, there appeared to be varying perceptions of students on their perceptions of faculty attitudes and willingness to provide support.

Supportive practices in the classroom. Students identified practices of instructors/professors in which they considered to be most helpful to their learning within the classroom context. Most generally, students noted that professors who are on board with their accommodations, who ensure that these are in place for the student within their classroom, and who are willing to accommodate their teaching style and practices to suit different learning needs were of most assistance to them. Specific practices noted to be especially helpful were providing PowerPoint slides, notes, and materials to students ahead of class time. One-on-one support (helping to clarify assignments/expectations, additional skill development, and continuous communication) and respecting student’s wishes for privacy around their accommodations and additional help received was also noted as a significant support. Relationship development and having an instructor/professor who was understanding, caring, and supportive of student’s individual needs and feelings seemed to be perceived as a fundamental supportive practice that only a few students received from some faculty; the need for personal connection and feeling accepted by instructors/professors was a theme that came out in several students’ narratives:

These are students who are receiving accommodations for a reason so that in itself should be enough information for someone to be a listening ear and I think those have been my most meaningful experiences in terms of professors--are the professors who hear your concerns and work with you to figure out solutions, don't patronize you, or question the validity of your diagnosis. I think that is probably the most defeating thing--when someone questions the validity of your diagnosis. (Rachel, graduate student, Science/Math)

I feel like people just need to be supportive is the main thing. Like you don't have to do a lot for a person but at least treat them with respect. (Emma, undergraduate student, Social Science)

Challenges with the disability service office (DSO). Students also reported dealing with a number of challenges within the context of the disability services office (DSO), including obtaining appropriate (and timely) accommodations and challenges associated with the coordination of the accommodation procedure itself.

Obtaining accommodation. One of the main challenges students faced within the DSO environment was accessing appropriate accommodations for their learning needs and in a timely manner. For some, this challenge has been part of the adjustment process to the university setting, where having suitable accommodations put in place at the start of their program was a significant issue. Becca explains:

That was my challenge for me to being able to learn is because I couldn't...I was so stressed out with trying to like get my accommodations for exams or get my accommodations with my professors that I couldn't actually learn very well. Like my first semester there was really hard but it actually had nothing to do with my disability itself; it was being able to get the accommodations that I had had previously that were in my IEP too, so that was my main struggle. (Becca, undergraduate student, Science/Math)

Similarly, Lance outlines:

When I first started I was getting really frustrated with a lot of little things that I mentioned weren't running smoothly and in a timely manner. Like my first and second year at school—especially in my first year. So it was like why I was spending a lot of time in this when I should've been studying? Like emailing profs back-and-forth or actually going into the office and making appointment after appointment to make sure the right accommodations were in place. I think part of that was just that I was learning how the system--how (the DSO)--worked; I didn't really know. But another large part of that was that I just had to get used to doing a lot of the stuff on my own-- emailing the profs to make sure stuff happened properly. So that has impacted me for sure. It was a bit sour the first year but the sourness has waned over the years with the (DSO) just because I have become more resourceful on my own but I really feel that they can improve on certain things for sure. (Lance, undergraduate student, Social Science)

Time. For other students, the issue around obtaining accommodations was more related to time spent trying to obtain support. Specific issues around this included the amount of time it took to get a meeting with a support worker, the amount of time spent at meetings, and the amount of time it took to have accommodations put in place. This issue was perceived by students to be primarily because of a lack of available, qualified staff to manage the multitude of

cases. Shannon (Social Science), for example, who describes her DSO as “always swamped, with back-to-back appointments” says:

The only thing that was the problem was that they have the three counselors so it's really hard to get an appointment-- it's really hard to get in. They are always really busy. When booking appointments I usually have to book for three or four weeks later than when I was intending to book for because they are always really really busy. (Shannon, undergraduate student, Social Science)

On a similar note, Rachel (Science/Math) mentioned having to communicate with her advisor by email (depending on the inquiry) because “sometimes it takes forever” to see them, and Becca (Science/Math) noted having “check-ins” by phone with her advisor to help with the issue of time. Both students mentioned that with these conveniences came a lack of personal connection—which both felt were important for the student-DSO advisor relationship.

Availability of services. Another challenge that prevented some students from accessing accommodations was not knowing what types of accommodations were available to them (outside of what was recommended), which many students felt was a responsibility of the DSO. Emma, for example, explains:

You think you would get an email about what's available for services. It's like I have to search all on my own to try and find new things or sometimes when you ask them it's just they don't seem that interested or brush you off...I feel like it would be a lot better if they give you a list or explain where you can go for certain things-- learning skills... Stuff that they could help you with. or at least let me know what services are available. (Emma, undergraduate student, Social Science)

Similarly, after semesters of struggling without accommodations for writing, Rachel outlines:

Recently I found out about learning disability specialists at this institution and, you know, why wasn't I aware of this person before hand? I find out at the end of my Master's that this is a service that is available and when I had asked about writing services before they would direct me to the writing center and now that I know that this learning disability specialist exists, why was that not communicated earlier? So granted I didn't necessarily need much writing help in my Master's-- I was okay--but there were moments where I definitely at least initially could have used that service. So there is a gap in letting students know about what specific student services are available to them. It's a waste of resources if you don't make that known to students. (Rachel, graduate student, Science/Math)

Karen echoes these sentiments when she says:

If these supports do exist then it is purely only if I go in and maybe I ask about something and then it comes up and finally then they're like "oh here we have this". (Karen, graduate student, Science/Math)

Overall, some students felt that the DSO could do a better job in communicating what services were readily available to students.

The accommodation procedure. The accommodation process set out by the DSO itself also proved to be a challenge in some ways for students. Issues around privacy, logistics (coordinating accommodations between the DSO, professor and the student), and policies around accommodation procedures were all noted by students as being challenging at times.

Privacy. A primary issue noted by students around the accommodation procedure was the issue of privacy. Some participants suggested that there were improvements that could be made in relation to the discreetness of specific accommodations and how these were enacted in the learning environment. Specifically, the procedures around note-taking accommodations (obtaining notes from other students in the classroom) and test-taking (change of environment) were noted as being problematic at times. With note-taking, the issue was primarily related to self-disclosure; at one of the university settings, students were required to self-identify to the professor and request their help in recruiting a volunteer peer note-taker from the class for the accommodation to be put in place. Though the process is anonymous between students (the peer note-taker does not know who the student in need of assistance is), it proves to be challenging for students who do not wish to self-identify to the professor. Participants instead suggest that this task should be undertaken by the DSO:

When it's coming from the center for students with disabilities, I think that holds more value than when a student has to go and advocate to a professor and say this is what I need and the professor—if they have their doubts will express those doubts—and it just adds another level of tension and stress that doesn't need to be there for the student in terms of accessing those accommodations. (Rachel, graduate student, Science/Math)

Definitely about note-taking-- finding a way that is a little less embarrassing to get notes because that can be a struggle. (Emma, undergraduate student, Social Science)

The second accommodation related to procedures around test-taking in another environment. Specifically, some participants noted difficulties with having to explain where they

were to their peers when taking a test in another location (DSO, quiet area, etc.). Though this proved to be an issue for some students socially, most accepted this sacrifice and viewed the accommodation still as beneficial for their academic growth.

Another issue related to privacy was how professors acknowledged students with accommodations in their classrooms. While students suggested that most professors were discreet and protective of students who required accommodations, at least two participants noted incidents where the professor commented or made a remark about accommodations to students in front of their peers. Not only was this embarrassing for students who did not wish to be openly identified, but it also seemingly altered the level of trust students had with their professors.

Logistics. A second issue related to the accommodation procedure was the issue of logistics and challenges associated with coordinating and implementing accommodations amongst all stakeholders involved (students, DSO, professors). Specifically, students reported a number of incidents where accommodations were not received because of an error made in the accommodation process by the DSO, the professor, or because of a miscommunication between the two. Becca explains:

There were certain times where they (DSO) like messed that up and I wasn't able to do as well as I'd hoped. But like, I don't know, it just happens sometimes, like they didn't... sometimes they screwed up when I was supposed to be.... I was supposed to do it in a special room, sometimes they just didn't do that, so then I was going into the big gym. So that was kind of bad for me but I was able to still do well, I just wasn't as great. I need that special time. (Becca, undergraduate student, Science/Math)

Lance and Paolo recall similar experiences:

Sometimes also when accommodations are set up it doesn't always run smoothly or it's just not set up properly. For example for a lot of my courses I get note-takers to take notes...and there's supposed to be an announcement on the first day of class saying that there's a student who requires notes and can a volunteer please come forward, email the prof and then they'll set you up with (DSO). And sometimes that announcement is not done until two or three weeks into the term and I always have to remind the prof to make the announcement or to ask if any students have come forward to take the notes. Sometimes for my accommodated exams like one time I was put in a group room when I should've been put in an individual room--that sort of stuff--or just logistical mistakes. (Lance, undergraduate student, Social Science)

Basically there was a mix-up. There was supposed to be a cheat sheet involved.... I got there for the midterm and they had it for me when I showed up for the midterm. And then when I showed up for the final they didn't have it—I found out that I should've been bringing the cheat sheet with me. Then I found out from the counselor that they expedited it to try to help me out that way but that wasn't the process and I was like "but that's what happened the first time why would I think it changed the second" so those are the only incidences that I've come with the disability department...and I went to the final without the cheat sheet. (Paolo, undergraduate student, Social Science)

Students also described the disorganization of the DSO procedures to be a challenge:

It was more just...I found that they were really disorganized. They were trying to switch systems online and things kept disappearing and they stopped paying note-takers and so I found that the notes...a lot of my classes no longer had notes or if they did they no longer were very good. So those were the challenges just especially with the note-taking and making appointments and making arrangements for exams. (Marley, undergraduate student, Social Sciences)

I was really, really thankful to have the extra time to write my exams although sometimes the planning of it and the organizing of it was such a pain in the ass. I get that they have dates that they need to meet and I get that they have lots and lots of students but it just sometimes felt like...it's hard to explain.. because nobody was ever rude or nobody was ever mean but it's just like it would be frustrating. You would never know if you were writing here (associated campus) or at main (campus)--you never knew. (Shayna, graduate student, Social Science)

Another issue brought up by some students was the logistics of specific accommodations. Specifically, one accommodation that several students noted having an issue with was writing a test or exam in another location; often times these students would also require extra time to complete the test/exam and this location would be in a completely separate area in the school (possibly across campus), so it was unlikely that students would make it back to class at a suitable time. These factors were rarely taken into consideration, however, by the professor back in the classroom who would continue on with course content after the test/exam was complete, so students writing in a separate location would often miss course content as a result of their required accommodation. Lance explains:

It's happened quite a bit that when there's tests and the prof decides to do a lecture afterwards I'm writing in (DSO) room and that's not taken into consideration so my time runs along and I end up missing some of the lecture so I find I always have to verify with the prof that that is not going to occur and if it does, I have to suck it up. You know sometimes people don't always think of everything right? (Lance, undergraduate student, Social Science)

Overall, some students felt that they had to take it upon themselves to ensure their accommodations were set up and enacted properly, which was perceived by some to be an additional challenge/cause for stress:

I didn't think it would be this much trouble and this much work on my part--emailing profs back-and-forth to make sure that stuff runs smoothly in a timely manner, etc. So it's definitely been a lot more hassle than I thought it would've been when I first signed up for it when I started my university career. (Lance, undergraduate student, Social Science)

Once you learn how the system works and how to double-check to make sure your accommodations are in place. You got to do that before hand. And once you get to know the people at the (DSO) office and you speak up for yourself basically because yeah you kinda have to be that type of person or sometimes you can like fall through the cracks and your accommodations won't be set up properly or profs don't really know. (Lance, undergraduate student, Social Science)

I found their system to be somewhat unorganized which can be stressful but once I figured out how to work it was fine. (Marley, undergraduate student, Social Sciences)

Policies. A third challenge as expressed by participants related to policies around securing accommodations for learning in the university environment. Specifically, students described challenges associated with rules and regulations of obtaining accommodations in specific incidents and the flexibility (or lack thereof) around these in certain cases.

One of the main issues related to policy for some students appeared to be the issue of registering for exam accommodations. According to students, in order to receive appropriate accommodations for testing/exams, students were required to register with the DSO or exam center ahead of time. If students forgot to register for some reason, issues around obtaining accommodation prevailed. Some students noted having to deal with inflexible and often unsympathetic caseworkers to remediate the process in some way:

There was one time in my undergrad I was actually in a learning disability course and there were these quizzes so in order for students to access exam accommodations at this institution you have to request an accommodation for an exam or a quiz or a test and that needs to be done at a certain time in order for you to get that accommodation and generally I'm really good at that and I'm really on top of that. But sometimes with everything else going on you might forget one or two quizzes especially if they are little things so it slipped my mind somehow and I forgot to register for it and so it was one of those things where I went to my advisor and I said "Is there anyway we could still manage to get this accommodation in place?" and she was like "Well that's our policy, and you know I usually give my students one freebie and you used your one freebie already in your three years". So I think I had asked once before and this was in my third year of my undergrad.... Again I understand why you need some time-- exam services might need time to process exams and get them organized and everything like that, but again going back to the institutional solutions for human problems idea, it can be a struggle for students who really need the services. What if that was a 50% or 60% exam? It was only a little quiz--I'll let it go, but if it was a big exam and we stick so rigidly to these policies that are ineffective... (Rachel, graduate student, Science/Math)

There was one time they changed their policy in the middle of the year where you had to sign up for exams seven business days in advance...and I signed up seven days in advance as opposed to seven business days and they wouldn't let me sign up so I emailed her and I said "I'm so sorry I made this mistake, is there anyway that you can do something about this because the policy has just been implemented and it's the first time" and she refused to do anything about it. It wasn't during an exam or anything it was just a midterm but she just refused even though I feel like the policy was already confusing and you have this policy for students who are already struggling any university setting. I don't know. It just seems like she was not willing to accommodate any of us. it seemed like she was almost in that position because she hated that people with learning disabilities got accommodations. (Karen, graduate student, Science/Math)

I always have my stuff in and I would be organized but then the one time I had to change an exam (literally once) it was like I was asking for the university to cater just to me... It just felt like there could've been a simpler solution. (Shayna, graduate student, Social Science)

A secondary issue brought up by one student related to policy was having to register for disability-related services on a recurring basis:

I had all of these extra steps around registering for accessibility services every semester--not just every year--every semester. Well, why every semester? It's a permanent disability. Why don't you just transfer the registration over and if the student decided that I actually don't want to be registered this year then they can go and remove that registration. That's much more efficient than requiring the students with permanent disabilities to go and register every single year. Why not just register them and then they figure at the course stuff later. It's just little things that could increase the efficiency that would make huge differences and not being so rigid in the policies. (Rachel, graduate student, Science/Math)

Overall, students felt that some of the policies set in place by the DSO around accessibility services were often too rigid and did not account for the specific needs of the population for which they were meant. Some students felt that both the policies and the people enacting these should be more flexible in nature in consideration of specific circumstances.

Supportive practices in the DSO. Despite some challenges faced by students with the DSO, students often identified the DSO and service workers within this as their biggest supports for their learning needs. First and foremost, students' individual caseworkers and counselors were recognized as being of most assistance to students. Supportive practices offered to students by these individuals included personal counseling, skill development, help with planning and scheduling, advocacy on the student's behalf (to professors/instructors and other officials within the university) and mediation if needed (between the student and professors/instructors regarding learning accommodations). Additionally, a prominent aspect highlighted by some students was the relationship that they developed with their caseworker/counselor; it was quite evident that the trust developed within this was a key factor for many students. Lance, for example, when asked about his biggest support in university, says:

Definitely my (DSO) counselor would be my biggest supporter in terms of (DSO) related stuff and in terms of school too I'd say. He's good... he knows me you know? I've been there for four years now so he knows me well. (Lance, undergraduate student, Social Science)

In addition to students' caseworkers and counselors, the services offered to students by the DSO also proved to be a significant help for students. Notable services included access to a learning strategist, access to a technology specialist, access to technology for use (e.g. speech-to-text

software), personal counseling, skill-building workshops (academic and social), and pre-programming and introductions to services for first-year students.

Additional challenges in the university environment. Students reported facing a number of other challenges related to post-secondary learning in addition to challenges faced in the classroom and DSO environments specifically, including issues around stigma, self-disclosure, and obtaining accommodation in other learning settings.

Stigma and self-disclosure. Overcoming the stigma of having an LD appeared to be a considerable challenge for students in the university environment as this related primarily to managing relationships between both peers and professors. Students highlighted issues primarily related to acceptance and labeling as the main component associated with stigma from peers. Specifically, almost all students mentioned at least one incident where they were meant to feel as if they didn't belong in the classroom setting by their peers. When asked if he disclosed to peers, for example, Paolo says:

No. Other than the last class and the real reason for that was the fear of being labeled-- the fear that you would get looked at differently. And there's no way in the world that people don't do that...Because it's not physical people don't grasp it...You know, you don't have a wheel chair or walking sticks or stuff like that but you might as well have a sign on you that says "here comes the funny person". (Paolo, undergraduate student, Social Science)

Shannon echoes this idea when she says:

It's like as people find out you have LD it's like we have leprosy or something-- people avoid us like the plague. (Shannon, undergraduate student, Social Sciences)

As such, it appears that some students avoided disclosing to peers unless they absolutely had to, in order to prevent feeling "different" than the rest of the group. Lance, for example, says that:

I don't usually disclose to peers. I try to just keep that out because I find that sometimes peers will be even worse than profs in terms of just not understanding or jealous that you're getting time and a half or whatever. So I just prefer to avoid it .I had had a few incidences where I had to disclose to a few friends or classmates or been kind of forced to disclose in a roundabout way because they are like "where are you when you're writing the test" and I'm like you know in the SSD and some of them have been accommodating and some of them you can get the vibe where things change after you disclose that. (Lance, undergraduate student, Social Science)

Paolo and Shannon describe similar feelings in relation to disclosing to professors and previous teachers:

I've always heard that we're just "being lazy", or not applying ourselves, you know. We've all heard the stigmatism that were smart but were not smart enough, we don't apply ourselves, that kinda thing. I find that even with teachers the stigmatism is still there...and with the university I never wanted to test the waters because you don't want to be labeled. Pretty much when you get labeled with disability people look at you differently. If I was physically disabled that would be different but because I am mentally disabled I am looked at differently. (Paolo, undergraduate student, Social Science)

I had one professor who I'm pretty sure didn't believe in LD and I've had one of those teachers in high school before too that were just like "LD is a label for lazy people" or "LD is a label for stupid people who just don't or aren't able to do it" and they don't understand what LD is. (Shannon, undergraduate student, Social Sciences)

In terms of “why” the perceived stigma exists, many participants attribute the presence of stigma to their peers’ lack of knowledge and understanding of LD. Shannon, for example, suggests:

It's hard to talk to any of my other classmates because a lot of them don't get it. I have had a few classmates who just because I am intelligent really resent the fact that I get extra time on exams but and then I have to explain to them like...um no, if somebody coughs during an exam I am now messed up for the next 10 minutes because my train of thought is gone and I have to try and get it back but they don't see that--all they see are the test scores and that I am getting extra time. So I pretty much don't even mention it to classmates. (Shannon, undergraduate student, Social Sciences)

Rachel outlines a similar perspective when she says:

People don't necessarily understand why that accommodation or why that piece of technology is necessary because the disability is invisible. And I am very articulate so if you talk to me you are not going to know. But you ask me a question and I needed you to repeat it because I didn't process it and then I had to read it myself. And that's something that is invisible so you don't necessarily know. With peer interactions often times you're not challenged in the same way that you would be academically so your peers don't know and they don't see evidence of it. And so that can be a bit of a struggle at times... (Rachel, graduate student, Science/Math).

Self-disclosure for graduate students. Graduate students who participated in the study also appeared to have a unique challenge related to disclosing their LD. Most students in this grouping specified that the structure of graduate level learning did not require extensive use of accommodations (e.g. because of limited course work, limited formal testing, and increased

independent work). However, in terms of advocating for their learning needs to their immediate supervisors, professors and peer groups as needed, most were hesitant to disclose their disability for fear of professional ramifications. Rachel and Kelly, for example, both suggest that the environment and close-knit relationships developed within the graduate school context are one of the main causes for this hesitation:

I think in my undergrad there were many more students in my classes so I have like 300 or 400 students in my classes so it was possible to blend into the crowd and so the people that you became friends with in your classes you really kept in touch with people throughout the course of the four or five years that you're with them. Whereas in my master's it's a really small group of people. There are only like 50 of us--we all know each other by name, it's much more...you know...we are working together for two years we are in the exact same classes all the time and so I think just the environment is different and I think the environment made me feel that I didn't want to disclose because I can't just leave and never see those people again. And this is just a constant battle that I have with myself all the time...do I disclose? Do I not disclose? And I am sure it's possible I'm creating the barriers for myself but that's just based off my lived experiences. (Rachel, graduate student, Science/Math)

I find that when you're going through your undergrad you're mostly course based and so there are larger classes. So you're just doing the letter at the beginning and you're doing your own testing. The supports were a lot more involved and they encouraged you to come back. Whereas the graduate program I think the difference is that at this point I don't go up to the professors to identify unless there are going to be tests and there is only one class where that has been the case, the rest have been assignments that have been well spread out. And the other problem with that I find is (or maybe it's just my perception) but even if I was to go and identify at the beginning of the class you're going to be working with these individuals for the next how many years and like you don't want something like that to influence their opinion of your abilities and quality. (Kelly, graduate student, Science/Math)

I think it's because you're in a smaller --it's almost like you're in high school again with how small the environment is and it's very stressful in the sense that you're working with these individuals and you're trying to prove your worth and it almost seems like maybe they don't fully understand so they want to make sure that "okay well this is gonna be something that's going to affect how we do things or change how we interact" and such. (Kelly, graduate student, Science/Math)

Overall, it appears as though some participants were quite hesitant to disclose their disability to peers and professors for fear of being labeled and being treated “differently” than everyone else. The stigma associated with having a disability prevented students from advocating for their needs in a variety of ways.

Obtaining accommodations for experiential learning. Another area of concern for some students was related to accessing appropriate accommodations for learning contexts outside of the traditional classroom setting (e.g. experiential learning). Three participants, specifically, highlighted the challenges they faced in obtaining accommodations in professional work settings that were part of their university learning. The main challenge related primarily to determining what (if any) accommodations could be put in place for the student, depending on the student's learning needs and the learning context. Rachel (Science/Math) and Becca (Science/Math), for example, both struggled significantly to obtain accommodations in a clinical setting because there was no accommodation procedure in place for such experiences. As a result, Becca ended up postponing her clinical placement, and it was recommended to Rachel that she instead do a research-based placement. Although Rachel fought to complete a clinical placement with accommodations in place, it took significant conversation, convincing, and time spent with multiple stakeholders (DSO advisor, graduate program chair, her supervisor, and another professor/advocate) to finally achieve this.

A secondary challenge in obtaining accommodations in experiential learning settings related to working with professionals who were not necessarily familiar or aware of accommodations and the accommodations process. Rachel (Science/Math) and Emma (Social Science), for example, both expressed that there was some negativity from others towards them because of the need to accommodate the learning process. Emma, furthermore, expressed how she felt stigmatized by some of the professionals in her setting for having to learn in a different way. Overall, all three students noted a significant gap in accommodation services and support in professional settings for learning.

Other supports within and outside of the university. Aside from instructors/professors and the DSO, additional support systems students noted were family (parents, siblings, significant others), peers, and academic supervisors. Outside of the university context, family proved to be one of the most important supports students made use of, where these individuals played key roles for students in terms of offering support and understanding, guidance, academic assistance, and even advocacy. Peers played an important role for some students as well within and outside of the university context. Participants made note of special peer relationships they had formed where they received support such as encouragement and mentorship, academic

assistance, and social inclusion. For some graduate student participants, their immediate supervisors and graduate-level admin personnel played a critical role in the support process. The support process for these students included mentorship and guidance, academic assistance, and advocacy on their behalf at times.

Interestingly, some students also noted that their biggest support in the university environment was themselves in that they have developed the necessary skills and mentality to either manage their struggles on their own or self-advocate for their needs when needed:

I feel like more of a mature student and know the resources that are around me. I may not use them as much as other students with disabilities just because I feel as if I can handle things on my own like talking to my professors and getting my own accommodation set up. (Tara, undergraduate student, Social Science)

I find I have to support myself a lot. The student development center has been really helpful...but I know that I also have to be able to advocate for myself a lot; I know that I have to be able to go to a professor or a TA and say "look here's the issue". (Marley, undergraduate student, Social Sciences)

...You speak up for yourself basically because yeah you kinda have to be that type of person or sometimes you can like fall through the cracks and your accommodations won't be set up properly or profs don't really know. (Lance, undergraduate student, Social Science)

I think a lot of the stuff related to my learning disability is just kind of stuff that I have to do myself. (Karen, graduate student, Science/Math)

I personally am a very independent person anyways so I tend not to go see them to seek help. I am more likely to try to figure it out on my own. (Shannon, undergraduate student, Social Sciences)

Impacts on learning and the student experience. Overall, students noted that their experiences as students with learning disabilities at the university level have had both positive and negative impacts on their learning and their student experience overall.

Experiences with professors. Positive experiences with instructors and professors in the classroom have translated to positive impacts on learning in the university context overall. Specifically, for professors who have adopted a positive approach to working with students with learning disabilities (willing to accommodate, flexible in teaching practices, helpful/available

to students, understanding of student needs), students noted positive impacts such as academic achievement, increase in self-confidence, greater willingness to self-advocate for their needs, and greater feelings of safety in the classroom environment:

I think a lot of people thought it was going to be a negative experience for me but I ended up being one of the top of the class, just cause I was able to have a lot of support from people, and my professor was like, instead of being like “oh you have a disability” or like “you’re young, you can’t do this”, she was like “oh this is a challenge to make someone do better”. (Becca, undergraduate student, Science/Math)

In terms of the professors that I've had who had been more of a mentor type professor, that has had a really big influence on my confidence. I think that that's probably the most important because without that and without those types of experiences I might have been on a similar functioning level but my confidence would be a lot lower because I would have a lot less belief in my abilities. Whereas when I would work closely with a professor and they would tell me that I would be doing a really good job and that I really should apply to grad school and that kind of stuff that helps build me up. (Karen, graduate student, Science/Math)

They have certainly made it so that I am not afraid to go and see a professor when I need assistance-- particularly if it has something to do with my LD. Most professors seem to be very supportive and very understanding so I have no fear of going to talk to them about things. (Shannon, undergraduate student, Social Sciences)

I feel much safer within the class with the professor that understands and supports LDs than with a professor who doesn't. (Shannon, undergraduate student, Social Sciences)

Negative experiences with professors, on the other hand, have seemingly had negative impacts on students. Specifically, for those students who did encounter professors who have been unwilling to accommodate or who have presented with negative attitudes towards students with LD or the accommodation process generally, students highlighted negative impacts such as poorer academic achievement, issues around mental health (anxiety, stress, feelings of not belonging), and lack of willingness to self-advocate/ approach the instructor/professor regarding issues around their learning needs.

“Oh absolutely on my student experience-- the negative experiences. My mental health was totally shot after that encounter with that...professor. Completely shot. I remember going home and calling a buddy of mine just literally breaking down—not understanding like I've never experienced such a degrading perspective. (Rachel, graduate student, Science/Math)

Obviously teachers sometimes hinting or literally saying that “you know it's not good that you're getting (DSO) accommodations” or not believing me has definitely affected myself and my view of myself and my confidence. (Lance, undergraduate student, Social Science)

Experiences with the DSO. Participants suggested that, for the most part, their experiences with the DSO were fairly positive, and that the services provided within this had a positive impact on their student learning experience in university. Specific aspects that students commented on included the one-on-one support provided by their counselor, the accommodations provided, the array of services and programs offered to assist/further their learning, and having somewhere to go where they felt understood.

For the most part they're very helpful in accommodating me and they know what I need and I know what I need and I know what they can help me with so they're usually pretty good at helping me or helping any student really. So yeah they have been relatively positive experience. (Marley, undergraduate student, Social Sciences)

Negative experiences with the DSO noted in the interviews appeared to be somewhat sporadic and connected only to specific incidents, so a lasting negative impact did not appear to be felt by some students. One aspect that some students did highlight as having a negative experience on their learning was the issue of (dis)organization within the DSO, including having to wait to get appointments, and issues around the implementation of certain accommodations. Becca, for example, says:

At the beginning of the year, it negatively impacted on me, like 100% it negatively impacted on me. Like I wanted to quit, I wanted to leave—they were awful. Um, and they didn't understand how to like deal with people and they were just really disorganized so my first semester was really awful. It wasn't until I took charge in my learning, like I understand the advocating for yourself and doing your own work but like there was certain stuff that they should have been able to do for me that they didn't do so it was just the work that I was overwhelmed with so it was just a horrible experience. (Becca, undergraduate student, Science/Math)

Experiences with the peers. Participants outlined both positive and negative experiences with peers that have impacted on their learning experience in different ways. Positive interactions with peers have resulted in positive impacts such as greater academic achievement, greater access to course information and materials (with the help of peer support), and greater

feelings of acceptance and belonging. Karen (Science/Math) highlights the academic benefits of peer relations in her experience:

I think especially in grad school it's been really helpful to discuss what I'm learning with my peers. I think it allows both me and my peers to get a better understanding of what we're doing. It's also been helpful in terms of when I'm designing my project if I talk to my peers about it they can ask questions and I can refine my ideas so I have better ideas I guess. And especially when we go to talks that are pretty confusing I mean it's not like I could go talk to my supervisor-- my supervisor doesn't have time to just talk to me about irrelevant stuff-- but with my peers, I can talk to them like well "I really didn't understand this", "did you understand this?" and we can kind of talk through things which has been really helpful. I also- especially in grad school - like for studying for exams or for working on assignments, we often work together which is also very helpful because a lot of the things I think I wouldn't be able to do on my own especially with the programming course that I took-it was a lot of trial and error and a lot of people coming in with different expertise and who were helping each other. So yeah for the most part my experiences with my peers have been really positive and have really helped with everything that I'm doing in grad school. (Karen, graduate student, Science/Math)

Lance (Social Science) and Rachel (Science/Math) highlight the academic benefits of peer relationships as well as the social/emotional aspects:

It definitely usually helps to have peer connections-- it's definitely helped me enjoy school more and it's definitely helped me with school--you know they can suggest stuff for you to work on a project together sometime or study together so it's for the most part positive. (Lance, undergraduate student, Social Science).

During my undergrad again I had a good network of peers who were involved with the disability services as well and that was because there was a center in the library where I often went to access assistive technologies like Kurzweil and stuff like that. So I had interactions with other students there so that was nice having that center where I could be with people who understood and share our struggles and our victories together. (Rachel, graduate student, Science/Math).

Becca (Science/Math) interestingly also notes how her LD and the strategies she's learned over the years have helped her develop relationships with others and be able to help them academically:

I think it positively affected me because I was able to like share what I've learned, like a lot of people don't really know how to study really well because they've never really had to try, they've just had to...they just have the ability to memorize it, but once they have a lot of work they get really stressed out and so I was able to meet with a lot of people who were struggling and help them as well. So that was good. (Becca, undergraduate student, Science/Math)

Negative impacts of peer relationships and interactions on the learning process were primarily in relation to the stigma associated with LD, feelings of being “different”, and feeling the need to have to defend accommodations to peers.

I feel you kind of have to explain leaving the room or extra time or “why is this person helping you and not helping me” kind of thing. So at first I had to re-explain that to people whereas before in high school I'd already explained it to people and they understand or whatever so that was kind of negative for me because not everyone had actually met someone with a learning disability before or understood what it is like and they are like “I have a learning disability, I want extra time” and I was like it is not like that—that is not how it works kind of thing. I had to explain that. (Becca, undergraduate student, Science/Math).

There were definitely moments where let's say, for example, I had my laptop subsidized through a bursary for students with disabilities and there were a few comments like "oh I wish I had my laptop subsidized". It's not the best feeling. And it's kind of like "well you know what? I wish I didn't have a learning disability". People don't necessarily understand why that accommodation or why that piece of technology is necessary because the disability is invisible. (Rachel, graduate student, Science/Math).

Most of my closer friends understood but then you'd still get those little comments that were like "oh darn I wish I would've had a little bit of extra time" and it was kind of directed to me and when I go to do the test early some of them are like...so I just stop telling some of them when I was going to do it because some of them were like "oh how was it". (Kelly, graduate student, Science/Math).

Additionally, participants highlighted how certain interactions have made them less willing to self-disclose for fear of ridicule:

My peers have actually made me a little more timid to do things like speak in class or talk about exams or even studying with other students because they can be so nasty. I've had a couple students be quite nasty to me for being LD and yeah they can make it quite unpleasant. And they asked me to study with them and it's like "no I'm not going to study with you after that" because I would have to mention the LD at some point while studying and it's not going to go well. (Shannon, undergraduate student, Social Science)

Qualitative Results and Themes: Faculty

Themes from the content analysis of faculty interviews were consistent in many ways with the themes that emerged from the content analysis of the student interviews. Key thematic areas included perceptions of personal preparedness, challenges in the classroom, challenges with the Disability Service Office (DSO), perceived institutional challenges, and impacts on teaching. See Table 20.

Table 20

Qualitative Themes: Faculty

Theme	Sub-Theme
Perceptions of personal preparedness	<ul style="list-style-type: none"> – Personal definition – Preparation and training – Comfort level
Challenges in the classroom	<ul style="list-style-type: none"> – Lack of knowledge of LD and supportive practices – Personal concerns about accommodations – Student self-advocacy – Time management and logistics
Challenges with the disability services office (DSO)	<ul style="list-style-type: none"> – The accommodation procedure – Departmental organization/staffing
Perceived institutional challenges	<ul style="list-style-type: none"> – Lack of professional development opportunities – Lack of support services
Impacts on teaching	<ul style="list-style-type: none"> – Positive impacts – Negative impacts – No impact

Perceptions of personal preparedness. A number of factors appeared to contribute to instructors/professor's personal perceptions of their own preparedness to meet the needs of students with LD in university classrooms, including: their knowledge and personal definition of LD and what this meant in the context of the classroom; the amount of formal training received; and their comfort level in accommodating students with LD in the classroom environment.

Personal definition. Faculty members' definitions of LD varied significantly from one individual to the next; some definitions were consistent with more medically based models of disability, while others' definitions tended to align with more social models of disability.

Those consistent with the medical models of disability viewed LD as an inherent form of impairment that disadvantages someone in some way:

Okay. A learning disability is any impediment to the retention of knowledge. That would be how I would define - actually the retention and use of knowledge. That is how I would define a learning disability. (Peter, Associate Professor, Science/Math)

I believe a learning disability is anything that makes it difficult for a student to learn in a traditional classroom setting, or impedes the learning process. (Kim, Lecturer, Sciences/Math)

The definition? Probably just those who have challenges in the learning process. Something as simple as that. (Bryan, Professor, Science/Math)

Those consistent with the social models of disability viewed LD as a result of social conditions (systematic barriers, negative attitudes, exclusion, etc.):

It's somebody who, it's not that they're stupid and can't do what they're doing, they just need other pathways to achieve that. (Helen, Assistant Professor, Social Sciences)

Most prominently, faculty definitions of LD appeared to be combination of medical and social models where LD was seen as a form of learning difficulty that was a result of a “condition” intrinsic to the individual, but one in which could be accommodated by environmental supports:

Someone who learns - does not - doesn't learn the conventional normal way. They might need extra aides in order to get them the concepts. (Lee, Lecturer, Science/Math)

Someone who has a targeted, cognitive - targeted issues, I guess, in cognitive areas that requires accommodation in order for them to be able to achieve the performance that other students of similar ability would be able to achieve. (Alex, Associate Professor, Science/Math)

So it's a cognitive issue that somehow requires the student - the student can generally achieve whatever the expected outcome is, but they need some sort of accommodation in terms of how they're evaluated or how they process the information that you're providing to them. That's how I would describe it as. (Arthur, Lecturer, Social Sciences)

Overall, the majority of faculty members had very broad definitions of LD and many willingly admitted that they did not have a reliable definition of the term:

A learning disability is anything that's been identified as a learning disability by the learning disabilities office. So my knowledge and understanding of learning disabilities is pretty much zero, or it might not be zero, but even if it wasn't zero, I feel like in my position I should treat it as though it's zero. I'm not a decision maker in that process, so a learning disability is anything that the powers that be - the disabilities office says is a learning disability and frankly, you know, the less I know about the particulars of the learning disability I think the better the system works. I don't really - you know, I have no expertise and I really don't want to take on the responsibility for things that just aren't my field. That I really know I don't have a - an informed background about. So it just goes based on a letter I get from the learning disability office saying, okay, this person needs accommodation. And that's where I stop reading. (Frank, Professor, Social Sciences)

I don't even know what the learning disabilities are first, so that shows you that I don't even know the classifications. I've got 1980's learning disability classifications, right? (Andrea, Assistant Professor, Social Sciences)

Extremely limited...I actually, you know, because I have no personal experience of it, I don't know what some of the learning disabilities are. (Randall, Assistant Professor, Science/Math).

Participants also seemed to have a difficult time separating LD (as a distinct form of disability) from other disabilities within the definitions and examples of specific experiences faced. Often, instructors/professors would describe other disabilities (e.g. physical, intellectual, issues with mental health) and the challenges that these posed to the learning process, as opposed to describing LD as a separate, individual challenge for students; any/all disabilities which impacted on the learning process in some way, therefore, were thought to be learning disabilities by many participants.

...Even if you had a student - you had a workshop, or some professional development on learning about students with, let's just say, autism...are on the autism spectrum - which does have a - not all people with autism have a learning disability - but does have a learning disability component - that student, I wouldn't necessarily know what practices to have in my classroom because that information isn't disclosed. (Andrea, Assistant Professor, Social Sciences)

From my own personal perspective, I was born completely deaf in one ear and half deaf in the other ear. So I had a learning difficulty, which was to do with receiving information in that way. But I guess the processing part wasn't impaired once I got it. So I kind of would have included all of that as being a learning difficulty, but clearly it's separated out here. (Edward, Associate Professor, Science/Math).

I guess I would just re-emphasize that probably the answers to a lot of your questions will very massively depend on the kind of learning disability that you're talking about. In particular whether it's one that's visible to everybody or not, so if it's blindness or deafness or cerebral palsy, that's radically different from anxiety, ADHD, where everybody in the class can see the need in the former cases and not in the latter. And maybe this brings us back to where we started off, that there's something helpful having this broad effects-oriented notion of learning disabilities where it affects anything that impedes your ability to learn, right? But it also, by ignoring the various causes, groups together stuff that may blind us to very important differences in the sub-categories. (Raul, Professor, Social Sciences).

Preparation and training. In terms of how instructors/professors have been trained to teach students with learning disabilities in their classrooms, many simply weren't. Specifically, many participants suggested that they have had no training (formal or informal) in terms of teaching generally and/or in terms of meeting the needs of students with learning disabilities in the classroom.

I have absolutely no background, training, or research, or professional qualifications that exposed me to the issue of a learning disability, so from my perspective, my understanding is very poor. (Peter, Associate Professor, Science/Math)

I haven't been prepared to teach period. (Randall, Assistant Professor, Science/Math)

No preparation. Not anything - no. I mean, experience and of course the student services and everybody else is very happy to make it clear that everyone has to accommodate, but in terms of specific tools for, you know, or best practices for working with somebody - you know, nothing. (Andrea, Assistant Professor, Social Sciences)

In fact, only one participant in the group described herself as having had “formal” teacher training with a specialization in disability (generally):

Well, because I have two - oh, sorry, I didn't tell you I have a doctorate in Education too - I got a doctorate from (UNIVERSITY) so I would say, first of all, for my Bachelor of Education degree, I took courses for people with special needs, and I took movement courses on people with severe physical and mental, special needs. And also I have taught movement programs myself for children with special needs, so that's sort of the groundwork basic. (Nadia, Professor, Science/Math).

Other instructors/professors describe some form of informal preparation through either their degree (they have some understanding of disability because of their training), or through their faculty (their faculty specializes in programs that emphasize disability in some way, or their faculty has provided workshops/training opportunities for instructors). Specifically, it appears that instructors/professors in Social Sciences faculties and instructors/professors from more “helping professions” in Science/Math faculties³ felt that they have had the most knowledge/preparation:

I have a PhD in Psychology, so I’m a registered Psychologist. All my work has been with people with disabilities since I was 17. So mostly, again, in developmental disabilities and autism have been the areas I’ve more recently, in the last few years, working with people with Asperger’s. So I’m really interested in that transition to adulthood years. (Beth, Assistant Professor, Science/Math)

I think that - I don't think I've have any formal education but because my area of expertise is language impairments, and so much of learning disability falls on individual's language learning and language status, I think through my - just because that's my area of expertise, I understand that we have modality differences. (Esther, Professor, Social Sciences)

I think my department is probably somewhat unique ...And so there's a lot of knowledge around and within certain professors, right? They do a lot of work around exceptionalities and they'll often talk about that and talk about their work. So I think overall, as a department, we're sort of maybe more attuned to the concept at least than some other departments. (Renee, Professor, Social Sciences)

Others describe having informal training through personal experience (having a LD themselves or having a family member with LD). In these incidents, it appears that instructors/professors feel that they have a greater sense of understanding of LD in terms of knowledge, practice, and inclusion:

And I think my other preparation is through my own personal experience as a mother of an individual and a sister of an individual with learning disabilities. So I have personal knowledge and involvement in that way. And I have advocated for my son so I understand technological things that are available and that kind of thing. (Esther, Professor, Social Sciences)

³ Departments/faculties were grouped by larger categories of Social Sciences or Sciences/Math. Social Sciences faculties included: Arts and Humanities, Education, Law, Media Studies, Music, Social Sciences. Science/Math faculties included: Business, Engineering, Health Sciences, Medicine and Dentistry, Science.

...My oldest son recognized very early on that he was having challenges, so we put him through the same process. We had him tested at a couple of different stages for his education as well, making sure both of our kids have IEPs in place, making sure they're getting the accommodations they need in place to make sure they're successful. And the difference that it makes is enormous...I think I tend to be more aware and more - I look for more average person might, whether I'm doing it successfully or not is another story, but the effort is there on my part and I'm aware of it. (Arthur, Lecturer, Social Sciences)

I think probably because I lived it. I lived it. So. I haven't taken any workshops or anything like that. ...But if you were to talk to another prof who doesn't have a learning disability, who doesn't - I'm probably hyper-sensitive to it because I lived it, I have sons that live it. They might think differently. Because they don't get it like I get it, so but for me I'm - yeah, I get it. And I don't feel like I'm lacking anything, so. I may be kind of at odds to this kind of a question, but only because I'm sure you don't interview a lot of faculty who have learning disabilities. (Bryan, Professor, Science/Math)

A majority of my experience comes from as a person who lives with a disability living through the system and seeing what works and what doesn't work and acknowledging the kinds of treatment I appreciate and friends of mine appreciate and trying to replicate that into classrooms. (Jason, Assistant Professor, Social Sciences)

I don't really have a technical understanding of it. I mean, a technical definition. I know that they're there in the DSM-5. My daughter for example was just diagnosed with a non-verbal learning disability, so I've said, of course, we'll deal with that and how that impacts her education. (Theo, Associate Professor, Social Sciences)

Comfort level. Despite the varying definitions and the lack of formal preparation/training to teach students with LD, professors from both Social Sciences and Science/Math faculties suggested that they were comfortable and willing to meet the needs of students with LD in the university context:

I do still feel pretty comfortable which sounds pretty arrogant, given I've just finished telling you that I don't think that I have received a lot of formal preparation, but I do feel quite prepared to accommodate different learning strategies. (Alex, Associate Professor, Science/Math)

I'm happy to do it. I wish more students would come to me with them. (Arthur, Lecturer, Social Sciences)

Very comfortable. I always ask them to give more input if there are things I'm looking for, just to let me know, make sure their needs are being met. (Bryan, Professor, Science/Math)

I am comfortable, really, because the fact is we make allowances, we make accommodations for all kinds of things... We make all kinds of accommodations, and any prof that says, 'oh no this is the material, this is the way we're going to teach', they're either clueless or lying. We make all kinds of accommodations, and I'm absolutely happy to make an accommodation. (Frank, Professor, Social Sciences)

This may surprise you given my lack of workshops, but I feel very prepared. And maybe it's because I may not be, but I think of myself as a person who is empathetic towards people with disabilities and always have been. (Gary, Associate Professor, Science/Math).

Interestingly, only one professor attributed her comfort level to the number of years in which she has been teaching:

Given that I've taught for 40 years? I'd say yes. (Nadia, Professor, Science/Math)

Other faculty, however, reported feeling either unprepared to meet the needs of students with LD in the university classroom or hesitant in their own abilities to do so to a full extent because of a lack of knowledge of LD and/or a lack of formal training on how to best support students with LD in their classrooms:

Not at all. You mean, prepared as being willing to or prepared as in having some education to do it? Because the answer is not at all to both of those. Or rather, I would be prepared to, if I understood better what I should be doing. So I don't. (Edward, Associate Professor, Science/Math)

The overarching theme of what I'm going to tell you is that I don't feel prepared at all and I don't feel like we've been given any training, or ever are given enough information. (Kim, Lecturer, Sciences/Math)

Yeah, I mean, emotionally? Very well prepared. But practically? Unless they don't - they can't tell me exactly what they need, then I'm not prepared. So I don't have a role in which I can identify ways to help them. That's the thing, so if somebody comes to me and says they're dyslexic, or they have a difficult time with processing PowerPoint's, or whatever it may be, I beyond what they tell me they need, I have no idea how to help people with specific learning disabilities, so yeah. (Andrea, Assistant Professor, Social Sciences)

Overall, while it seems that instructors/professors are willing to put in the effort to support students with LD in the university classroom context, many simply just don't know how in practice.

Challenges in the classroom. Instructors/professors described several challenges they are faced with in meeting the needs of students with LD in the university classroom, including a lack of knowledge of LD and a lack of knowledge of supportive teaching practices; personal concerns about the accommodation process/the need for accommodations; issues around student self-advocacy (or lack thereof) and the implications this had on teaching; and time management and logistics.

Lack of knowledge of LD and supportive practices. As evidenced by participants' perceptions of preparedness, some instructors and professors did not feel that they had adequate knowledge of LD and/or the implications of this for learning in the classroom environment to effectively meet students' needs.

A particular area of concern for some instructors/professors was not having enough understanding of the nature of LD to effectively support students through their teaching practice:

I know, kind of colloquially, what these things are. I appreciate the challenges that they must pose, but I don't have any first hand experience with that either. Me, or anyone in my family that I'm directly aware of. So I don't think I have a very good knowledge or good tools from that perspective to say, "oh I know that this could really help," or "I know precisely what you're struggling with," I would just either recognize a diagnosis or not recognize a diagnosis, and that's about it. (Julie, Associate Professor, Social Sciences)

I think the problem is I don't know what the needs are. ...When it comes to learning disabilities, I mean, I never had any idea really, aside from the accommodation, because I don't really remember who had them. Besides the box I just, you know, "oh that person writes the exam in a different room," that's mostly what I think about, so I don't feel like I have any ideas of the needs or what would make things better. (Kim, Lecturer, Sciences/Math)

It's not clear to me who has disabilities, what they are, or even what sort of general pedagogical strategies could be incorporated in the classroom in general, which would just enable greater access without changing content. Like, I don't even know any of those strategies. You know? (Andrea, Assistant Professor, Social Sciences)

Furthermore, the nature of LD as an “invisible” disability proved to be a challenge for some. Kim, for example, notes the difficulty in identifying LD in an individual in comparison to a physical disability:

But I think the biggest issue when it comes to learning disabilities is how there's just no - like at least with, you know, the hearing impairment and the vision impairment, we talked about it at the beginning and we had some understanding of what they needed and I could have a conversation with them periodically throughout the course. But with these, with the learning disabilities, I feel like it's just this underground, underlying thing that exists, but I don't know it exists, so it's like, I don't really know what students are struggling or what students needs because it's not talked about as much, probably because of the stigma I guess. So it's just sort of this thing that's under the surface that I don't really think about very much because it's not brought to my attention, and also, yeah, I don't know, I think that's probably the hardest part about it. (Kim, Lecturer, Sciences/Math)

A specific challenge in supporting students with LD appeared to be related to modifying their teaching style and learning formats in a way that meets the needs of all learners in the classroom; it was unclear to some participants how to do so in an effective way:

The challenges come from accommodating – supporting...supporting students with a range of ways of learning that optimize their success. I see learning disabilities as just one other component, that range that exists another way...The biggest thing is education and just knowing what the options are. I'm not sure that there's a really good filter system to allow that information to flow to instructors. (Arthur, Lecturer, Social Sciences)

Another issue I face is I find that students with learning disabilities are actually not much different than students without learning disabilities, in that they are all very different. So treating every student like a learning disability as though they're the same person with the same issues in the same way, that doesn't work. That makes them no different than the other students that I teach. But it makes it a challenge, because I don't necessarily know what works for every individual case. So understanding how to help them... understanding what I need to do for them to help themselves is a real challenge. (Peter, Associate Professor, Science/Math)

A main concern for participants in terms of accommodation was accessing information from students to be able to tailor their practices accordingly. Specifically, some instructors/professors highlighted their fear of wrongdoing in attempting to accommodate students; many were concerned that, in attempting to find the best way to meet the needs of a student with LD, they would overstep some kind of boundary with the student, or breach some form of protocol with the DSO:

The barrier for me from that perspective is I just don't feel that that dialogue is there. And it's partly my fault if fault is the right word. Partly my doing because I don't devote a ton of time to reaching out and making that space. I imagine that if I get that form I can call that student into my office and initiate the dialogue. I've never done that, but maybe I'm afraid to do that, I'm not sure. Maybe - I don't know. Maybe I don't do that because I'm prying, maybe I don't do it because it just doesn't occur to me or it doesn't seem needed, in some ways, because everything looks so generic. (Julie, Associate Professor, Social Sciences)

I hope I don't say anything that's inappropriate or insensitive, or anything like that. And I don't - I feel like I'm a relatively gentle human, so I would like to think that I wouldn't, but I don't know, because I haven't been told what to say or what not to say. (Julie, Associate Professor, Social Sciences)

But what am I even allowed to ask? I feel like there's so much secrecy around this type of disability, for whatever reason. (Kim, Lecturer, Sciences/Math)

Say I was working with a student and I was noticing something like in their work that was consistently a bit off and I started to think, 'oh my gosh, I wonder if this is a learning disability', but didn't know for sure.... I can imagine going online, seeing if there's information there, and of course talking to the student which, I think, you need to be careful of because you don't need to be grilling them about their personal life. (Renee, Professor, Social Sciences)

Despite these challenges, some participants noted that they often tried to make a personal effort to accommodate students in their classroom as best as they could. Strategies included a supportive/caring approach (having an "open door" policy; being a "listening ear"; making it known that they are there to help in any way they can, etc.); one-on-one support (meeting with students outside of class time; offering extra time/assistance in understanding material; working with students during group work; providing support by email, etc.); modifying learning materials or assessment structure (providing different forms of the same assignment; providing extra time for completion of assignments, changing formal assessments to assignment format; allowing extra time for assessments; allowing students without accommodation to write assessment in separate room; etc.); changing teaching style (making more multimodal; adding group work to lecture; providing notes/materials to students before/after teaching; ensuring clarity in instruction, etc.); changing the set-up of the classroom (positioning of chairs for visibility, etc.) and seeking outside support for students when needed.

Other instructors/professors appeared to instead opt for more of a “hands-off” approach to accommodating students, where they would simply follow the lead of the DSO and strictly adhere to what was required of them through that office:

If somebody is recommended to have extra time or special rooms for examinations or for tests or stuff you know, we just honour it. That's then taken care of by another division within the University, so you know they arrange the examination rooms and the proctors and they supply the papers. (Randall, Assistant Professor, Science/Math)

I don't really - you know, I have no expertise and I really don't want to take on the responsibility for things that just aren't my field. That I really know I don't have a - an informed background about. So when - you know, yeah. So it just goes based on a letter I get from the learning disability office saying, okay, this person needs accommodation. (Frank, Professor, Social Sciences)

I do what I can, what I'm instructed to, but I don't know exactly what I'm supposed to do, I would say. (Lee, Lecturer, Science/Math)

Overall, it appears as though instructors/professors' lack of knowledge of LD has impacted on their ability to provide accommodations to students at times, where some are unclear on how to accommodate in way that meets students' needs but that does not overstep any boundaries.

Personal concerns about accommodations. Additional challenges related to the support and accommodation process for students with LD included concerns about inclusion in the university environment (generally) and concerns about the accommodation process.

Inclusion. With regard to inclusion, some participants appeared to hold inclusive philosophies of teaching and learning which transpired in their daily teaching. In fact, almost all instructors/professors suggested that they felt that students with LD should be included and supported within the university environment without question:

They have every right to get an A in your class, just like everybody else. It's just the instructor's job to provide a learning environment where they can get an A. And if they don't get an A they don't get an A, but if you don't give them the opportunity to get an A, they didn't drop the ball, you dropped the ball. (Bryan, Professor, Science/Math)

What I believe about disability, it's that it isn't something a minority group has, it's part of the human condition. And for some part of our lives, every person will have - for some period of time - a disability, whether it is from birth on, whether it is 'I take my glasses off and I can't see very well,' right now I am visually disabled. Whether I put it into practice, I certainly think more about making it all more accessible if possible (Esther, Professor, Social Sciences)

It doesn't matter if you have a diagnosis or not, doesn't matter if a doctor has says, “you have this issue, you do not”. If you're struggling I think we need to find a way to get you through. It's something I open up to all students. Let's work on the things that you're not so great at, but let's also lean on the skills that you really do have, that you're excellent at, and use that as a way of identifying you're picking up the information. Because that's the goal at the end of the class. (Jason, Assistant Professor, Social Sciences)

I don't see any reason why, fundamentally, people who have various learning challenges can't learn. That seems totally silly to make that statement. Lots of people struggle at different times for different reasons. Many people who have particular wiring in their brains or ways of interpreting the world often, at least in my anecdotal experience, go on to do quite great things because they do have a slightly different take on what's going on, and I don't think that needs to be an unnecessary hurdle. (Julie, Associate Professor, Social Sciences)

For others, however, inclusion/belonging in the university context was dependent on the extent of the disability. Specifically, some instructors/professors suggested that students with LD should only be included as long as students are able to “keep up” with the demands of the university context:

Yes, depending on the disability. So if the learning disability is such that they are incapable of the kind of work I think it's totally unfair to put them in an environment in which they're just going to come up against failure all the time...But...I do definitely think students with learning disabilities should be in University if they can do University work. If they can't, I don't think they should be here just like I would say about anybody else, learning disability or otherwise. (Andrea, Assistant Professor, Social Sciences)

I do believe they belong in a University setting as long as they can keep up with the work, with accommodation, and not disrupt everybody else, or not disrupt everybody else on a regular basis. Every now and then disrupting is fine. Yeah, I do. (Helen, Assistant Professor, Social Sciences)

Absolutely! Absolutely! We should never deny someone the possibility of an education. I'm also pretty tough. They have to meet the standard required with appropriate accommodation, but they have to meet the standard required. Let me put a nuance on that, they have to reach the standard required based on what they can do. Some of them. I mean others, classwork, you got to pass the courses, and you got to get the appropriate grades. So someone who can't do that, they probably don't belong in University, but that applies to many people in our population. (Gary, Associate Professor, Science/Math).

Even with a reasonable accommodation, if they can't make it, I'll fail them. And a disability is not a reason to not fail, so I'm a firm believer in the - come and let in lots, but if you let in lots, then you should be free to fail out the other ones and take your shot at it. So absolutely they should be let in and given every chance to try and succeed but to recognize that just because you're let in, you're - just because you're saying yeah, you belong here, doesn't necessarily mean it's going to work out. (Frank, Professor, Social Sciences)

The accommodation process. With regard to the accommodation process specifically, main concerns were around the need for specific types of accommodations; how accommodations might compromise the integrity of the course content/material; issues of fairness (to other students) in providing accommodations; concerns about accommodation outside of the schooling context; and perceptions of how students strategically use their accommodations to “get ahead”.

In terms of specific types of accommodations, the main concerns appeared to be around accommodations of extra time on assignments/assessments and providing class notes to students:

Mostly, it always made me a little bit suspicious that they all end up being extra time on exams. And when you're seeing a one-size-fits all solution, it can't help by make one a little but skeptical, but that's mostly what I see, that's mostly what it comes down to. (Frank, Professor, Social Sciences)

I'm not sure as to whether giving somebody an hour and a half to finish an hour's work goes—what that achieves. If they have a problem that's not, if they can't possibly think, they can't process, I don't know what the issue is. So it's not an opinion I've expressed to the students or to anybody else but I wonder what the value of that is, it seems it might be the wrong cure for a different problems. (Randall, Assistant Professor, Science/Math)

I provide the PowerPoint presentations and all of my lectures...and they're on the (ONLINE) learning and management system afterwards. And even before, sometimes I put them on before; students requested I put them on before so they can follow as I'm talking. A little bit dubious about that because sometimes students get lazy, like it's all here so I don't have to write anything down, but not actually learning anything because in order to learn something you need to write it down. I think there's a connection between writing something and absorbing it. But I do provide that for students. (Theo, Associate Professor, Social Sciences).

To the best of my knowledge there's only been one occasion that I can remember that I was unable to help the student based upon what they were asking to me to do. And that situation, quite simply, they wanted my notes and I said no. The reason I said no was that is not fair to all the other students in my class who don't get my notes. (Peter, Associate Professor, Science/Math)

Additionally, some professors were concerned with the accommodation of a “cheat sheet” and how this might compromise the integrity of the course:

I think there are some requests that we get that are perplexing, and maybe there needs to be more education about those, right? There was an issue - trying to remember the specific details - an issue came up where a student was saying it was part of their accommodation to have a cheat sheet to bring to exams, right? That was at that line, right? Is that an accommodation for - it depends what you're trying to test, right? Or if what you're evaluating is a person's ability to memorize, then a cheat sheet undermines that goal. That learning goal. And I think that, so generally I trust the (DSO) but I also feel they need to maybe be in better conversations sometimes with us about those kinds of accommodations that seem to actually undermine the academic integrity of the course, right? (Renee, Professor, Social Sciences)

One of the most complex ones that came to my attention recently, I was contacted by one of the counselors and we had a chat for forty-five minutes about how we might deal with this person's apparent disabilities, and it was suggested that he might take to examination a crib sheet, and what sort of things would be acceptable that wouldn't compromise the integrity of the course, and I didn't really know what to suggest...So, for example, if a student were to come into an examination with a bunch of sample calculations, then that very much subverts the point of the exercise. You know, you don't ever have to have thought about the relationship between anything if you've got, it's like that one, right in certain numbers, you know? So it was kind of, I was hard pressed for...I don't encourage memorization anyway. (Randall, Assistant Professor, Science/Math)

The issue of fairness was also broadly described as a challenge for some instructors/professors, where it was evident that this was connected to concerns of academic integrity and maintaining course standards for all; some participants struggled with the idea of

how to accommodate certain students in a way that would not put them at an advantage in comparison to other students:

For (some)...It must be very hard to decide, what can I-- because there is a fairness to it, you know? You're thinking, what can I provide to this student in a fair way that doesn't disadvantage all the other students? I mean, ideally, the accommodations should put the person on a level playing field, not put them on a higher up playing field. (Raul, Professor, Social Sciences)

I think the students who get administered by (DSO) have been through a process of evaluation and this facility has been given to them. The question is, does it give them a significant benefit in terms of showing their real ability to answer the set problems of being given them more time or not. Is it something that we can say 'this student has been given three hour exam, another hour and a half, and because of that what we're seeing is a real interpretation of a student's full ability and understanding,' or is it an arbitrary thing? Is there any metric that says what we're doing is academically, neurologically sound? I don't know, that sort of thing never gets fed back to me or any of us. (Edward, Associate Professor, Science/Math)

One big challenge: fairness. I struggle with whether I'm being fair to the student with the learning disabilities, and also the students who don't have it who perceive the student with the learning disability as getting something that they're not getting. It's a real challenge. That's the biggest, number one issue I face, fairness, because as far as I'm concerned, that is part of my job. I have to be fair. (Peter, Associate Professor, Science/Math)

...Mostly that sort of distinction between accommodating someone and changing the, like how to accommodate someone without changing the expectations of what you're supposed to do in order to get through a course, and that's an extremely tricky line. (Renee, Professor, Social Sciences)

Other participants expressed ethical concern in accommodating students in terms of how accommodations translate beyond the university context. Specifically, two instructors/professors were concerned about student well-being in the work context where students would not necessarily have accommodation:

It really came into focus to me this year - was the students in our professional program where we can provide accommodations in our academic program for them to succeed, which I'm delighted. But part of that, not even part, but primarily what they are here to become are clinicians. And in the real world, many of the accommodations that we can provide - yes, you may have 20 more minutes for every hour that the test goes on, or you may have a quiet space - if you have to run a group of preschoolers, it's not quiet. And they have an attention span of about this long, and that's all the time you get to read with them. So I'm struggling with that personally...because the dilemma that presents to me is that I have enormous respect for that individual and the fact that they've worked so hard to even get into our pool of potential students, but also knowing on the other ends, yes I think we can put in place the accommodations for you to be successful in the classroom, but I have grave concerns about you being in a situation where those things can't be accommodated. So it puts me in a dilemma, because legally that shouldn't make any difference in terms of admission to a program. So I confess to being torn and confused about that. (Esther, Professor, Social Sciences)

I wonder what the value of that is, it seems it might be the wrong cure for a different problems. And I've brought in a newspaper, if I may, this is part of the ambiguity - when I saw this, I was, I thought I'd talk to you. So this is a letter to the, it's in the business thing, and it says, "I have been working with my employer for almost six months. On occasion, my boss has said he doesn't have confidence in my abilities. He gets frustrated and yelled at me in front of other employees. It's gotten to the point where I'm mentally damaged and may take medical leave to seek counseling and get help for my depression and anxiety. I want to get back to work quickly, I like the job atmosphere and the people are great. However these punishing self-esteem blows have debilitated me. I'm also dealing with some serious family matters that have been draining my mental well-being, I don't want my boss to think I'm taking leave for a vacation, my boss is old-school and I know there's a stigma around me taking a leave. I know it would help, in time, to deal with my mental help. How should I handle this?" And that's, that can be split in one of two ways in the way I sort of see disabilities. So if you give somebody accommodation in school and then they get thrown into this environment, what have you achieved? (Randall, Assistant Professor, Science/Math)

Instructors/professors were also concerned with how students used their accommodations. Specifically, there was some questioning as to whether or not there was a "strategic" element to the use of specific accommodations by some students:

The concerns I do have about the system are already brought up is the fact that the disability or not is kind of endogenous, and some students if they have a diagnosis in their pocket, they can choose to whip it out or not when they see fit and that does add a whole extra strategic element to the students' decision. And you know, there is strategy in all of this—the courses you take, how you do it - in many ways, we're teaching them how to work the system. It's one of the things they learn and it's a valuable skill. I see that as one extra element that the students identified have and that part makes me a little bit, the fact that it can be used strategically in courses when they see fit or when it works to their advantage, the other issue I brought up is whether there should be an annotation on an official transcript. (Frank, Professor, Social Sciences)

It gets tricky though, I mean, you hate to be the cynic but sometimes I understand that things like anxiety, for example, are a real thing and they really do interfere with people's work, but it's hard to know, especially when it shows up in the middle of the term, around the time that they didn't get something in on time, it's hard to not be a little skeptical when it's an actual problem or an excuse. And of course you want to err on the side of actual concern, but it does make it tricky especially when it comes in the middle of the term. (Kim, Lecturer, Sciences/Math)

You don't want to say that you're not believing a student, but sometimes students come in with all sorts of interesting stories. You want to feel like you're giving an even, fair treatment to everybody. And the piece of paper does help with allowing you to then go that next step forward and say, Okay, fine, great, that protocol is taken care of, now let's get past it, not to say that you can't address those challenges with the students before a piece of paper, but when you don't know the student well and when you're unsure if the student is pulling your leg a little bit, or is trying to get around some things, and because of the nature of that interaction that students usually just come to open up that dialogue once they're already way in the hole, it's more likely to look like they're trying to bail themselves out, opposed to them coming to you on the first day and saying, "heads up, this might all go south", and this is why. (Julie, Associate Professor, Social Sciences)

In general, it was apparent that some participants appeared to struggle with the idea of leniency in providing accommodations beyond what has been set out by the DSO, which appears to be connected to a discrepancy in knowledge of what constitutes the need for accommodation (be it disability-related issues or other issues). The evident concern for some was what types of issues to accommodate, and how to do so in a way that is fair, but that does not undermine their authority:

As faculty we get students in our offices that are in distress, that are really struggling, they're scared, they're upset, they think their life is ending for a variety of different reasons. There has never been a lot of support, or kind of, formal direction as a person coming up through the ranks on how you deal with that. Do I keep my door open? Do I close my door? Do I offer them a tissue? What do I do when a student is in my office who is weeping? That usually starts out that they're upset they didn't do well on a test, but often leads to disappointment of their family members, or financial struggles, and their world is just laid out for you. I don't feel distinctly prepared to address that student beyond just trying to be a sympathetic ear while simultaneously trying to maintain my own rigor. I don't want to be a pushover because that gets you into all sorts of trouble too, but that's a big question mark, and I like to think that I go to more professional development around teaching than some others, and we don't talk about that a whole lot. (Julie, Associate Professor, Social Sciences)

A difficulty that I have, and I'm sure everybody has this, is it's very hard to distinguish, is this just a student who only wants to party, who doesn't have much motivation, they're missing classes and not doing reading because of that, versus, is this is a student who has a special need that I can accommodate. And of course, students will take advantage of that, and I think lots of people in the wider public - maybe less so with University professors - but in the wider public, they often dismiss learning disabilities as, the kid's just looking for an excuse. And you hear that, people talk about ADHD, it's not a real thing - I know it's a real thing. But I think people are wary of cheaters. And overly so, and as a result, it becomes harder when you have a genuine problem. (Raul, Professor, Social Sciences)

Overall, despite the inclusive mentalities that many instructors/professors appeared to hold, some participants had considerable reservations and concerns with the idea of accommodating students with LD in a way that was fair and equitable for all.

Student self-advocacy. Issues around student self-identification and self-advocacy proved to be an additional challenge for faculty. Specifically, some instructors/professors were concerned with the lack of student self-identification:

Unless they don't - they can't tell me exactly what they need, then I'm not prepared. So I don't have a role in which I can identify ways to help them. That's the thing, so if somebody comes to me and says they're dyslexic, or they have a difficult time with processing PowerPoints, or whatever it may be, I beyond what they tell me they need, I have no idea how to help people with specific learning disabilities, so yeah. (Andrea, Assistant Professor, Social Sciences)

How would I identify students because they don't come forward in class? We're not told who these students are until they're registered for special consideration during exams, and sometimes that doesn't happen until well into the course. (Edward, Associate Professor, Science/Math)

The other side of it is that if the student was more forthcoming with me, perhaps they would come to me and say, can we talk about these things? I've seen this in the syllabus, or, gee, that class we just had was really challenging because of xyz, then that opens up a space for discussion about how we do things differently. But I absolutely appreciate that students aren't going to feel super comfortable in opening up that dialogue. I would imagine that they spent much of their lives trying to hide the fact that they have whatever challenge it is that they have, and that's a barrier in itself, coming to a professor's office nobody likes to do. (Julie, Associate Professor, Social Sciences)

I don't feel comfortable because I don't always know who's identified and what they're identified as. I mean, and, I mean some of that is the students don't want to express that, and I respect that totally. I think they think it's going to be some kind of stigma, and it has been for centuries, so I can understand that, but I think they don't understand that we're living in an environment now where it's ways better to tell us what the problem is, we can probably solve it. (Helen, Assistant Professor, Social Sciences)

Overall, while instructors/professors clearly understood that student self-identification to faculty was not a requirement for reasons of privacy and confidentiality, some felt that if students were to do so more frequently, they would have greater ability in meeting the student's individual needs within the classroom.

Time management and logistics. Issues around time management and logistics of accommodating students was the fourth main challenge for instructors/professors in accommodating students with LD. Specifically, some professors expressed concern with the amount of time it takes to tailor teaching practices, modify the learning format, and provide certain accommodations for individual learning needs in their classrooms, especially when managing larger class sizes:

Time is a factor when you're developing classes, when you're doing research. We don't get a lot of time to think about our pedagogical skills, let alone the pedagogy of students who stray from the normalcy, from that line. (Jason, Assistant Professor, Social Sciences)

I think as far as the desire and willingness to support students undeniably, yes, that's there. The actual logistics of doing that put forward some barriers that make it a little bit harder because then you need to take time for that, and that's the biggest killer around. Being organized enough to remember to do the things you need to do and the time it takes to make any modifications or if you have to change and assignment or something like that, that's an added task. (Julie, Associate Professor, Social Sciences)

I have only so much - I have a certain amount of material that I have to have covered by the end of the term. And this isn't even so much just for students with learning disabilities, it's something I feel I have to struggle with, with all of my students. And so a lot has to happen in a very compressed amount of time... And so I guess I see that dilemma only enhanced for students who have to - who need more time, or different iterations of how to come at the material. So that's probably the biggest challenge. (Esther, Professor, Social Sciences)

I selfishly feel sometimes like "oh my gosh, it's more work for me to accommodate" if I was asked. I think I would be stressed that I - oh, I have to do extra stuff in order to accommodate them and I'm already so busy anyways, but I feel I could be selfish in that it is sucking time from other stuff I had to get done for one individual student out of four hundred and I'm sure that is something I shouldn't say out loud but I guess that one of the things you're looking for. (Lee, Lecturer, Science/Math)

Many of us really don't put a lot of effort into it. There are some that do, but in part that's because at many universities, especially the bigger ones, while our duties include teaching, research and service, research is the number one thing. That basically involves papers, presentations, and grants. That's basically it. (Peter, Associate Professor, Science/Math)

Time constraints appear to be even more prominent in relation to class size; the larger the class is, and the greater variance of individual needs within that, the greater challenge it is for instructors/professors:

Challenges I face? Well, it's just the volume. Like I have 400 students and if I had to accommodate, you know, 20 or 400 which doesn't even seem that many it is just my time pressures that is just so - like I said is just selfishly that I have other stuff I have to get done for my work, and the easier the student is - but they always say that 20% of students, and I'm not saying learning disabilities students cause 80% of your work, but it's true. (Lee, Lecturer, Science/Math)

The issue is there - and as a University professor, probably most professors don't value the range of students whom they have in their classes, and therefore feel they have to go out of their way for students who are different and that's probably a pain in the neck for them because they want to get to their research. So for them it's a dialectical thing, like do I...I spend more time on my research which I get rewards for, or do I spend my time on my teaching? And let's remember if I have 100 or 200 or 300 students in my class and there's one I need to spend a lot of time on, the reward back from a statistical point of view, that student may not even fill out a course evaluation. So there's - I don't agree with that, I don't do that, but I know my colleagues can feel that way. (Nadia, Professor, Science/Math)

Well, one would be that we have huge courses, huge classes, right? That (COURSE NUMBER) class, really it's sort of I feel like students get here and it's sort of sink or swim, and if you face any kind of challenges, learning disabilities or whatever, it's extra challenging because you really have to advocate for yourself. Often folks here are like 17, first time here, and it's just totally overwhelming so, you know, if we had first year classes with me and thirty students it would be completely different. (Renee, Professor, Social Sciences)

When I have a class of 25, and there's a student that hasn't handed in work and has missed some classes, I can send an email and say, I'm concerned, how can I help? And if it turns out, if they're having a depressed episode, or anxiety, or having, reaching out that way can really make a difference. If you have a class of 300, then you're not going to notice that they're missing class, and you're not going to notice that they did poorly on a test even if you expected them to do well. So yes, it's especially time consuming, and when I have small undergraduate classes, when I have graduate classes, I can deal with that. (Raul, Professor, Social Sciences)

Additionally, the administrative demands in providing certain accommodations appeared to be another issue around time for some participants:

The only thing that I do find onerous - but that is more my problem - is that a lot of times I'm pushing the deadline. And the fact that I have to get the exam done two days before I'm actually giving it - that is hard for me to get it done sooner. But it is also good for me because otherwise I'd be trying to finish the exam the hour before I'm actually giving it, so this way it makes me be more disciplined. Which is a good thing. (Frank, Professor, Social Sciences)

When it's an exam being written off-site then there's usually a reminder that comes up and says "You need to upload your exam" or, "You need to upload your exam within two days of the exam date" and that usually requires me writing the test sooner than I might have, which is probably better for everybody involved. It is often kind of a last minute scramble I find, of an "Oh, shoot, right, I have to do that" and then I quickly get onto it. (Julie, Associate Professor, Social Sciences)

Just like, the beginning of September and dealing with the stuff I get from (DSO) just sucks up a little time (Lee, Lecturer, Science/Math)

Logistical challenges around implementing accommodations appeared to be a secondary challenge for some, where they felt that the process of setting up, accessing, and implementing accommodations could be made easier by the DSO. In particular, both participating universities were in the process of shifting the accommodation process to an online system, so accepting and managing accommodations through an online portal was perceived to be a challenge for some:

You get the person who deals with the doctor's note and then types out the thing and then sends it to the professors and now they put it online because that's a weird thing too, because now you have to go through the (UNIVERSITY) site to get the list of people who need to be accommodated which not everybody is familiar with the system, so I think there's a lot of professors - particularly older professors who have no idea. (Andrea, Assistant Professor, Social Sciences)

Accommodation's there, it's online for you to find, the accommodations are clear, just give them the accommodations. And some of my colleagues can't figure out to get on the website, you click on something, you get the names that are accommodated, the boneheaded people sometimes. (Theo, Associate Professor, Social Sciences).

I think it's become - I think they've changed it just recently that now there's an email. It seems to me they've done something to try to make it a little more immediate and clear. That we are supposed to log on to the internet system and then we can look and see what accommodations have been requested. So essentially what I do from my end is I get an email, because I usually don't just spontaneously check it, I go once I get notified that I should go look, and I think prior to this they didn't send a notification before and I'd log on at the end of the course and go, oh my goodness, this was on here? I didn't even know. So I think that change has been made recently. (Julie, Associate Professor, Social Sciences)

Now they've got a system, they call it (ONLINE SYSTEM) or whatever, it had a bit of a learning curve, it took a bit of time but that works just great. (Frank, Professor, Social Sciences)

Some professors also noted challenges associated with how specific accommodations were set up and what was physically required of them by the DSO in providing accommodations to students:

They just put in a new system where I don't have to physically walk the - At one point you had to physically walk copies of the exams there. That was a real pain in the ass. (Frank, Professor, Social Sciences)

Having to pick up the exams, that is a pain in the neck as well. But I always do that because I don't trust the delivery system if it is going to be there the one time I specifically click the box that is - I will come and pick it up and it turned out they had mailed it anyways, but there was a couple of days where nobody knew where this was until it eventually came, but certainly a little bit of stress in there. (Frank, Professor, Social Sciences)

If there's a group of students, between 2-4 students, who have registered with (the DSO), sitting exams separately without admission of time, that's what happens, then it's administered with them but they don't necessarily put them at the same time or same place on campus. So I can end up walking around - and I don't know in advance where they're going to be. So I walk to the (main DSO office) which is here where the office is and they say, 'oh, you've got to walk all the way down to (LOCATION ACROSS CAMPUS), or some other place. (Edward, Associate Professor, Science/Math)

Overall, while it was apparent that many instructors/professors were willing to provide accommodation for students, concerns about the amount of time required to do so in an effective way were a significant challenge.

Challenges with the Disability Service Office (DSO). In addition to challenges faced in the classroom, instructors and professors noted challenges they faced with the accommodation process within the context of the DSO. Two main challenges become evident: issues with the accommodation procedure itself and how this was implemented, and issues around departmental organization and staffing.

The accommodation procedure. Issues with the accommodation procedure appeared to be the main challenge that instructors/professors noted in terms of dealing with the DSO. Specifically, challenges included: feeling “removed” from the accommodation process and accessing support from the DSO for accommodations for students.

Feeling removed. Challenges around how accommodations were implemented proved to be a primary challenge, where participants noted feeling “removed” from the accommodation process in a way that they felt inhibited their ability to support students with LD in their classrooms. While faculty primarily agreed with and respected the DSO policies around confidentiality and privacy, some felt it would be beneficial for them to be more knowledgeable about the types of disabilities students had in their classes (i.e. the nature of the disability and supportive practices to assist students with these) and why certain those were needed in order to accommodate them to a fuller extent:

Well, I'm not given enough information but on the other hand given the privacy and confidentiality, I mean, I can't be given enough information to really function appropriately. If I really wanted to be as helpful as I could to help a student, it would be helpful to know what the problem was. (Raul, Professor, Social Sciences)

So we just accept what we're told as being given without ever being told why. Because presumably there are confidentiality reasons, but in general it would be nice to know the relationship between the learning difficulty, the processing of information and cognitive disabilities the student has, and the benefit of additional time, whether it's - it kind of matches up by giving a level playing field with other students sitting exams. (Edward, Associate Professor, Science/Math)

I feel like it feels a lot like everything is sort of out of our hands, which, again, is probably for the most part good, because again, we don't need to know all of their personal information. But they'll say - when you approve the accommodations they'll say, you know, if you have any problems with this, you can change things, but again since you don't know the situation, it's not clear whether the accommodation is fair or not. For that student or in relation to the rest of the class. (Kim, Lecturer, Sciences/Math)

I don't feel I need to know the nitty-gritty of all of their life and their challenges, but I think in some instances, slightly more specificity might help me make more of a direct intervention instead of the blanket statements that seem to be, more time, or whatever it is. Because there's got to be more nuance to it than that, but it doesn't seem to be a space that I'm engaged in. (Julie, Associate Professor, Social Sciences)

I think they do a very good job of accommodating students probably what they don't do is - well enough - and maybe it's not their responsibility, it's getting faculty to understand...Our (DSO), is not - they don't teach the classes, right? And so they actually only deal with half of the issue, which is the student half. And there's still the faculty half. And if they don't come to the class with an understanding on a - you know, on a daily basis, that I've got somebody in the audience there that has a learning disability and I need to make sure that I cater to them today - then you're, it's not successful. (Bryan, Professor, Science/Math)

Accessing support. A second challenge for faculty with regard to the DSO accommodation process was the issue of accessing support. Specifically, faculty note incidents where the DSO has either been unhelpful in providing accommodations for students at an instructor/professor's request, or where the DSO has been too invasive in their approach to facilitating accommodation for a student through the instructor/professor.

For the first issue, professors highlighted incidents where they approached the DSO for assistance with a student (with disabilities, generally), but support was not received:

I had concerns about a particular student this last academic year because I teach language acquisition and when someone comes to me and we're working and she's struggling with language I was concerned. Now, again, nobody has to disclose to me, I'm fine without them disclosing what the nature of - but I did have correspondence with her advisor or counselor and, again, said you don't need to disclose but this is what I'm seeing - is there a way that I should be supporting this student that the accommodations are not addressing? And I got a response, 'well I will check with someone else, because we don't see anything in the documentation that we have that she should need that kind of help,' and then it kind of dropped there. It kind of fell. I didn't get any further with them. (Esther, Professor, Social Sciences)

I had a student this year, actually same intro class, who broke his wrist two days before the exam and said okay, he wasn't able to write but he said he could poke around and type. So I called them and I said, I have a student in need, a crisis, he needs to write an exam, I can't let him use a computer because I don't have the ability to shut down the internet, it has to be the proper environment. Oh no, no, he hasn't been documented, he's not in the system, we can't accommodate him. So okay, yeah, go ahead. These are my irritating experiences with this and I know it's not directly learning disabilities, but because it's the people who are in charge of all of this, these are the things that make me go, ugh. (Andrea, Assistant Professor, Social Sciences)

And I had a student that was an ESL student, and you could tell when she talked in class that she was very aware and she was capable of graduate studies if she wanted to pursue them, but her grade was terrible. She was having a lot of trouble in passing because of the language abilities. And so I actually went to student services looking for help for her, and she completely fell through the class because there were no accommodations for her because the learning challenges she was experiencing working with were because she was from China, and it wasn't considered a learning disability but at the same time it was impeding her ability right? For what it's worth, I found that extremely discouraging to go and find resources and find that nothing's available to assist her. (Arthur, Lecturer, Social Sciences)

I've had to deal with students with mental health issues, which were learning disabilities for a couple of individuals I'm thinking of, and these are students in our PhD program. They eventually left, and they were both very smart individuals. Very smart. And no need not to have gotten through the program, given their intellectual capabilities. But they had issues that, again, not being an expert, but appeared to me to be related to mental health. And we tried to get them help (at the DSO), and they accommodated some of it but weren't open to accommodating a lot of it. (Gary, Associate Professor, Science/Math).

Other faculty, however, noted incidents where the DSO was too invasive in their approach to outreach and assistance:

Sometimes I wish they were a bit more consultative about what will work for us instead of saying, this will work for you... (Renee, Professor, Social Sciences)

Well, I don't like it when people try to tell me how to do my job that aren't my boss. And (DSO) does that far too much. So I'm not a big fan of that....So I think that one of the things that would make that better is I might be a little more receptive to ideas that they might have that might help students that are under their supervision, but they also have to be receptive to ideas that I have that might better help me better do my job. It can't be a one way flow of dictating information. There has to be a little bit of give and take, and there doesn't seem to be that here in my opinion. (Peter, Associate Professor, Science/Math)

Overall, despite the acceptance of privacy/confidentiality policies of the DSO, some instructors/professors feel that they are not provided with enough support (information about the nature of LD, one-one assistance, non-invasive guidance) around how to accommodate specific students in the classroom.

Departmental organization/staffing. The second challenge with the DSO related to departmental organization. Specifically, participants noted challenges related to DSO staffing and the quality of support received within this office to be an issue.

The main challenge noted with regard to this issue was the perceived lack of staffing available to support the amount of students in need:

I think, like any other services on this campus, they're overworked and so we have too few of those individuals for what I perceive is a burgeoning number of students with special needs and not only those with learning disabilities. (Esther, Professor, Social Sciences)

I mean there's not enough of anything to go around here. As you can imagine, there are thousands of people, there's far too many students and far too few instructors and support staff. A lot of managers, you've heard that too. Vice presidents are cleaning the toilets. (Randall, Assistant Professor, Science/Math)

They're totally, like many folks in many universities, they're completely overtaxed and understaffed, they have many students to process. They've tried to figure out ways to organize things. (Renee, Professor, Social Sciences)

I think the student support office is doing well, but I think they're being overwhelmed. (Theo, Associate Professor, Social Sciences).

Another issue for some instructors/professors was the amount of training and education that DSO staff had and the quality of support that was being given to students. Jason, for example, describes his concern with the quality of counseling that students receive:

My major complaint about that system - and I don't have a solution for it - my biggest complaint is that the delivery of service is extremely tethered. It's very much tethered to the quality of the person delivering the service. That really good counselors make it work. That the system is absolutely functional if you've got great front-line staff. The problem that I've seen both as a student and as a faculty member is that not all counselors are the same, and that student's experiences are really determined by the quality of those workers and the backgrounds that they have. And often, in a lot of ways, based on the time they've been around. There are some counselors who are so good because they have seen everything. And that's a huge factor. (Jason, Assistant Professor, Social Sciences)

Andrea, furthermore, questioned the amount of training that DSO staff have to be equipped to support instructors/professors in their teaching to help support students at the classroom level:

I don't trust those people's education. I don't think, just because they do student services, I don't know who those people are. I suspect they're administrators, it doesn't mean they know how to organize a workshop or even what the best learning environment for you to be and to take in all the information, you know what I mean? I think it should come from somebody who specializes in... and also, because I'm a professor, not that I don't like learning from people who aren't professors, but it might be helpful to share a discourse about teaching in the classroom with somebody who isn't just an administrator but who's read a few books on whatever. So for me, that's where I'd want the education to come from. From people who are specializing in it. I'm happy even for a master's student. I just mean someone academically in the discourse who's thought about it. (Andrea, Assistant Professor, Social Sciences)

Despite these challenges, participants primarily reported that the DSO is who they would turn to first for support. Other supports in the university context included colleagues who had experience/expertise in the area of LD, the Teaching and Learning Center at the university, or department officials (program Chairs, Dean, etc.).

Perceived institutional challenges. Participants also highlighted perceived institutional challenges that impacted on the quality of support provided to students with LD, including the lack of professional development opportunities for instructors/professors, and the lack of available services for students in need of accommodation and extra support.

Lack of professional development opportunities. The main challenge that directly impacted their ability to provide support to students was the lack of programming/professional development opportunities for instructors/professors:

And it's a funny thing right, the learning? They're supposed to be doing pedagogy - I haven't seen any workshops on coping with learning disabilities or understanding learning disabilities in the classroom. (Andrea, Assistant Professor, Social Sciences)

We can sign up for classes on effective testing, we can sign up for classes on effective lectures, we can sign up for classes on building our CV. Where are the classes on accommodating students? And maybe they exist, but I've never seen it, and that's, I think, a big problem. In a really big way. (Jason, Assistant Professor, Social Sciences)

I've never actually taken a workshop through the (DSO) on how to instruct students with learning disabilities or anything like that. I've never, and I could be wrong, but I don't think they've ever actually offered a course or workshop for faculty on how to handle these cases, how to - little steps, like little suggestions. (Bryan, Professor, Science/Math)

I think there's a growing awareness; at least most of the colleagues in my department know accommodations are almost always necessary. There aren't specific kind of workshops about how to do that, it's pretty much and ad-hoc basis. (Theo, Associate Professor, Social Sciences).

Overall, it was evident that instructors and professors felt that the university should provide more adequate training and support for faculty to be able to accommodate students with LD (and other disabilities) more effectively in the classroom. A clear theme from this, however, was that instructors/professors were uncertain with where this support should come from (e.g. their departments, the DSO, the Teaching and Learning Center, etc.).

Lack of support services. A second institutional challenge noted by faculty with regard to the accommodation process was the perceived lack of support services for students. Andrea, Beth, and Peter suggest:

I just don't know that there's enough being done for students which gives them a critical discourse about the way in which, okay this is University, these are the expectations, this is your particular challenge, we all have them. Here are strategies for working through your particular challenge, and you know, these are the expectations. So that - I feel like there's a disconnect between having a student services in place which does the paperwork and they're very good about making sure we know there's certain things for that. And in fact, helping students with more than general workshops, you know? About time management, which any student can relate to. So it's - I think it's hard and I think it's much easier on everybody's part to just say, They have a learning disability, what do you expect? I feel like there's too much of that. On the student's parts too, right? Because they get this discourse that expectations aren't the same for them. (Andrea, Assistant Professor, Social Sciences)

I know it works for people with relatively mild disabilities, but from the point of view from people involved in my research who have more significant disabilities, what I've found - what I'm hearing from them is that they don't necessarily get the level of support that they need. (Beth, Assistant Professor, Science/Math)

So I actually come across a lot of students in my classes who have gone to the services on campus, they've been tested, it's come back that they don't have a learning disability or they're in a grey area. And they get no help from the University. They will get help from me, they will get no help from the University. (Peter, Associate Professor, Science/Math)

One issue in particular that became evident was the perceived challenge of access to accommodations for some students, especially as this related to procedures around documentation and the costs associated with obtaining a formal diagnosis:

I think more significantly the challenge is for students being assessed appropriately, assessed early, and have the money to be assessed. And I think that's a problem for my colleagues. So for example we had a master's student here, who had a learning disability, and he needed to pay like \$500 to get people to recognize this and have the resources flow out as they should, and his prof and his advisor paid \$500 so he could be assessed. So that's more a systemic problem. (Nadia, Professor, Science/Math)

I have a daughter with learning disabilities; in our case we're fairly lucky because we're fairly affluent so we paid for our daughter's own assessment, like \$3000, so a working class family could not afford it. So the child may never be identified. They might arrive at University somehow by accommodating their weaknesses and arrive at University without any kind of diagnosis, so that's a problem. And it's similar to the problem with student support services, across the board, the province of Ontario, the department of the board of education, there are no resources for this. (Theo, Associate Professor, Social Sciences)

Overall, participants noted discrepancies between types of support required (by students in need of learning support and by them as teachers) and types of support received; some instructors/professors clearly felt that the support for students at the institutional level was not adequate.

Impacts on teaching. Overall, instructors/professors noted that their experiences teaching students with LD in the university classroom had either positive impacts, negative impacts or no impacts at all on their teaching practice.

Positive impacts. Positive impacts included greater knowledge of issues that students with LD face, greater understanding and acceptance of diversity and learning, and advancement in pedagogy.

In terms of knowledge, Bryan and Raul, for example, outline how having students with disabilities (generally) in their classrooms who have been open about their disability has increased both their personal knowledge of disabilities and the knowledge of other students in the class:

Well I think it's been great because most of the people in our program will self-disclose during class discussions. They'll talk about the impact of their disability and that makes a huge difference for the whole class, and actually some of the people in the crutches, I'm thinking about one person in particular, is a mother of two kids with autism and she herself has a disability - ADD. So she was very willing to share things about her life, her challenges, and I think it really interests the class that other people can see what she's dealing with and the challenges of having a disability and being able to put that into the conversations we have about disability, really. It improves the class. It is great to have people with disability. (Bryan, Professor, Science/Math)

Yes it's a challenge, because you have to adapt yourself to a more varied audience, but it's also good for me as a teacher and good for the other students in the class. So I don't see it as, here's an extra chore I have to deal with. To give an example off the top of my head, when I had a deaf student in the class and we were talking about language issues, she was able to contribute a point of view that was really insightful and helpful that other students wouldn't have. (Raul, Professor, Social Sciences)

In terms of practice, other participants made note of how having students with LD and other disabilities in class has changed their teaching style in some way:

I just - when I teach, I teach as if everybody has a learning disability. I do. I keep it really simple, clear, straightforward - and I'm not perfect. I really try and do it - I really try and be patient in the classroom, and when you know this stuff really well, sometimes that's hard because you're going, 'Geez, guys, come on, I've taught it three times and you still don't get it?' The problem isn't with them, the problem is with me, and I just need to take a step back and do it again. Stuff like that. So. I think that's how I construct my classes. Yeah. (Bryan, Professor, Science/Math)

I think that it's lead me away from the classic mid-term exam or final paper approach, I really stress good writing, thinking, critical thinking skills in my courses. And I prefer to do that with a lot of smaller assignments rather than one major assignment. Give the students - you need time to asses your abilities, and give them a chance to exercise your abilities rather than investing it all in one assignment you do poorly in, so that's the other thing I've done because of that. (Theo, Associate Professor, Social Sciences).

It's made me question everything that I teach, how I teach it, everything, and I've made discoveries - I've made, as I say, it's been this eye-opener for me when I had those three students in the class back when I was still part time, and I went, 'Okay I'm just going to have to invent things'. I mean, I know lots and lots of techniques, and we just tried things and worked on things and we did amazing things. (Helen, Assistant Professor, Social Sciences)

In terms of attitude, other instructors have noted positive changes in their approach to students with having students with learning disabilities in their classrooms:

I think it's made me more sympathetic and open-minded. It's made me more aware of differences not just in academic abilities, but in the goals that students bring to class, what they're trying to get out of it. (Raul, Professor, Social Sciences)

We never had that many students in a class of 75 or 70 or 55. I may get one a year. Out of 140 students that I'm aware of, anyway. And generally, most—if not all—have a learning disability because like I say we're proactive in encouraging them - but I kind of view that as part of my responsibility to kind of be conscious of that and try and accommodate, if possible. (Gary, Associate Professor, Science/Math).

Furthermore, those participants who had personal experience with LD or the need for accommodation in some way (e.g. they had a learning disability or other form of disability themselves, or they had direct experience with someone who did) described more personal positive impacts in their teaching in some way because they could empathize with the situation:

Of course they should be, you know, included. I was very sick for a long time in my life and I needed accommodations, so it's also why it's very personal for me. And without the accommodation, I would not have been able to be a professor. So of course accommodation, if it's legitimate, reasonable and actually can help the person perform at the level they need to perform, is I think is so vital. So vital. (Andrea, Assistant Professor, Social Sciences)

So maybe it's a benefit I have a learning disability because I'm sensitive every day to kids with learning disabilities, because I know what it's like to feel like you're not getting it, like you're the dumb kid in the class, all that kind of stuff. (Bryan, Professor, Science/Math)

My educational experience has always been one of concurrent modification, that when I step into a classroom I know that I will not be able to do the class in the same way my other classmates can; this was in elementary school, in high school, and finally in University. And the solution to this was, if you can't do it this way, then let's find a way for you to be able to complete it. There are many ways to complete an assignment, it's about finding a way that fits to your ability...I try and bring that same type of idea into my classroom, and this applies to all students. (Jason, Assistant Professor, Social Sciences)

Other participants suggested that their teaching has been positively impacted not because of students with learning disabilities specifically, but because of their recognition of diversity and the need to adapt to varying differences in learning:

The only other thing I can say is that my exposure to diversity and to the many different ways - being a good teacher accommodates learning disabilities to some degree anyway, because you're accommodating many different learning styles, so I think my interaction with the (Teaching and Learning Center) has probably been the most influential. So I guess in a way it's not working with students with learning disabilities that has impacted my teaching, it's more interacting with other educators to incorporate many different strategies, I'm hoping has impacted my abilities to reach students with learning disabilities. And when I say that, I'm talking about specifically the ones who do not disclose. So I hope that when I accommodate many different learning styles I'm accommodating different learning issues as well. (Arthur, Lecturer, Social Sciences)

I don't know that it's actually the fact of having students with learning disabilities in the class, but more about universal design for learning. And it's because I've had graduate students work on that issue, it's what I believe about disability, it's that it isn't something a minority group has, it's part of the human condition. (Esther, Professor, Social Sciences)

Negative impacts. Negative impacts for instructors/professors included personal stress around not knowing how to accommodate different learning needs, having to put more effort into adapting teaching, time management, and diplomacy.

Andrea, for example, discusses the personal and professional toll it took on her when she wasn't able to meet the needs of a student in one of her classes:

It was horrible. Worst evaluations I've ever had, worst things that people have said, and I always pride - I'm not a, having been sick for so long, my research is so behind, I'm very anxious about going up for tenure, so teaching has always been my sort of thing. So it was particularly hard on me because I felt like I had let down the students. (Andrea, Assistant Professor, Social Sciences)

Gary and Jason noted negative impacts related to having to modify or change their preferred teaching style:

Well I talked about the hearing-impaired student where I had to be conscious of making sure I was speaking in her general direction all the time, which meant I couldn't - I mean generally in a case-based classroom, you're always switching from side to middle to side to middle to side to make sure that you're not missing anyone who had their hand up who wants to say something. But with that one student, I was limited in my ability to go completely on side to side because I had to focus more on the centre of the class. But other than that, I find I don't think it limits me at all in my teaching. The hearing impaired student is the only student I can remember where perhaps it impacted my teaching in the classroom. (Gary, Associate Professor, Science/Math).

It's tough because you will kind of develop your own style in your classroom in a way that you feel really comfortable teaching, and a way that you feel comfortable imparting knowledge. And I know myself, it's really hard to break those patterns, right?... And trying to make myself think of the different ways that people like to learn, the different ways people can learn, and obviously just trying to figure out multimedia. That's what I've been trying to figure out right now, trying to incorporate sound, image, video, and text, and to try and bring all of those types of things together. So that if a student is missing parts of it, at least they're not missing all of it. That they're able to get the information that works for them, but it's tough. (Jason, Assistant Professor, Social Sciences)

Lee, again, reiterates the negative impact that the accommodation process has on her teaching in terms of time management, stress, and the amount of effort required to adapt her teaching:

I selfishly feel sometimes like “oh my gosh, it is more work for me to accommodate”. If I was asked, I think I would be stressed that I - oh, I have to do extra stuff in order to accommodate them and I’m already so busy anyways, but I feel I could be selfish in that it is sucking time from other stuff I had to get done for one individual student out of four hundred...(Lee, Lecturer, Science/Math)

And Helen notes how having students with learning disabilities and other disabilities has forced her to reconsider how she interacts with certain students:

We cast our shows by audition, and I have had to get into some very complicated discussions about, “No, it's not about your disability, it's about the fact that there was somebody who was better for this part”. This is not 'the right' part for you, or a part that is going to work for you. That kind of discussion. And I feel like the frustration a bit is I have to be very, very careful, I have to be diplomatic, I have to separate whatever the learning or physical disability is from the task at hand. (Helen, Assistant Professor, Social Sciences)

No impact. The majority of professors suggested that having students with learning disabilities in their classrooms has not impacted them or their teaching at all:

It really hasn't at all. The accommodations that have currently been demanded of me in my experience have really been quite small, and I can't think of a single instance where I really taught a different way or did different material or changed what I was doing in the classroom or in my preparation at all. (Frank, Professor, Social Sciences)

I don't think it's impacted either negatively or positively. I think that in my case, I try to provide everyone with an opportunity for success and in providing many different tools to all students, I don't think I'm advantaging or disadvantaging any students in the class. (Alex, Associate Professor, Science/Math)

So it hasn't directly, because there hasn't been much formal interaction with students with learning disabilities. I thought there would be more. (Arthur, Lecturer, Social Sciences)

I don't know that it officially has for the same reasons I was saying before, that I tend to kind of make choices in the classroom about how to deliver things and what my assessment tools are based on what seems to be, to me, to be a broader pedagogy around learning, learning styles, and learning approaches. That, I guess, I'd think would help also students with learning disabilities. But I don't necessarily know that. I'm assuming that represents another form of difference. That if I do a variety of approaches, then surely one of them will work. But that might be totally incorrect or not true...I'd say that it hasn't impacted how I design courses or how I go about thinking about delivering content or discussion issues or anything like that. (Julie, Associate Professor, Social Sciences)

Has zero impact. Absolutely no impact whatsoever. I am a little odd, so one of my teaching principles is I try and treat every student as though they're the same. Not in the sense that I don't believe there's individual variability amongst the students, but that's one way to ensure fairness...I don't believe that my approach to teaching has been impacted positively or negatively by having groups of students with learning disabilities in my classes. If it has, it has happened unconsciously because it is not something I go out of my way to try to do. (Peter, Associate Professor, Science/Math)

I don't think it has, because I think that all the things I just described to you, you know, different ways of presenting, I would do for any group of students, even if they're all clever, if they're all brilliant, some things work for some and some things work for other. So I don't think it's made an impact at all. (Randall, Assistant Professor, Science/Math)

Overall, while some instructors/professors were able to highlight visible changes in their knowledge, attitude and/or practice with the inclusion of students with LD and disabilities in general in their classrooms, others suggested that this has had no conscious impact on their teaching. Interestingly, some participants noted that they try to teach in a way that benefits the needs of all students, but many of these individuals do not know whether this is effective or not.

CHAPTER 6: DISCUSSION

The purpose of this study was to understand the learning needs of students with learning disabilities in higher education settings, highlighting both students' and faculty members' perspectives of faculty preparedness to teach students with LD and the effectiveness of various practices and policies that are currently in place to support students' overall inclusion into the higher education environment. The mixed methods approach to this study provided a means to view this issue from both broad and specific perspectives; the quantitative phase captured broad views of students with LD and faculty who taught these students about their perceptions of faculty preparedness to teach students with LD, while the qualitative phase highlighted more specific, unique perspectives of individual participants to help explain the broader findings. The theoretical perspectives of Bronfenbrenner (1977; 1998; 2006) and Tinto (1975; 1993; 2012), furthermore, provided a framework for which to analyze and understand this phenomenon. Bronfenbrenner's bioecological model of human development (1977; 1998; 2006) and Tinto's theory of student integration (1975; 1993; 2012) offered a person-in-context approach to consider how multiple factors (individual factors, environmental factors, the processes of interaction between these) worked together to influence the growth and development of students within the university context. In accordance with the perspectives used, several assumptions were made that are crucial to understanding the extent of theoretical congruency with this study:

- 1) In relation to both theories, the student with LD is at the heart of the model, representing the "developing person" whose personal characteristics, dispositions, and resources impact on the nature of the developmental process (Bronfenbrenner, & Morris, 2006, Tinto, 1975).
- 2) The university context is a microsystem-level environment that immediately and directly impacts on the development of the "developing person" (Bronfenbrenner, 2005, Bronfenbrenner & Morris 1998). This environment in and of itself is multidimensional, encompassing the classroom contexts in which students learn, the DSO within which students receive support, the social settings within the school context that students belong to, and the critical individuals who students interact with in these environments (e.g. faculty members, support staff, peer groups, etc.). To what extent the "developing person" integrates into this environment depends on the personal characteristics of the individual *and* the institutional characteristics (e.g.

- resources, facilities, programs, composition of it's members, etc.) of the university context (Tinto, 1975).
- 3) The mesosystem-level environment in this study relates to how the various aspects of the microsystems interact to impact the developing person (Bronfenbrenner, 2005; Bronfenbrenner & Morris 1998). In this specific study, particular focus is placed on the interactions between students and faculty, students and the DSO, faculty and the DSO, students and peers, and the interactions between all four of these. Integration and "fit" into the university context depends on the interactions that occur within the academic and social environments of this context (Bronfenbrenner, 2005; Bronfenbrenner & Morris 1998; Tinto, 1975).
 - 4) The exosystem in this study encompasses components of the university environment that influence the "developing person" indirectly (Bronfenbrenner, 2005; Bronfenbrenner & Morris 1998). For this study, such components include availability of services; educational policy regarding support services; and faculty and staff education/training (beyond the DSO).
 - 5) The macrosystem in this study refers to the overarching culture and values of the university context and the culture, values, norms, beliefs, and laws of the broader context in which this microsystem is embedded which may influence how students are treated. In this study, such components include the core values, motto, belief or mission of the university; beliefs/attitudes about disability; social policies of inclusion; disability-related legislation; and individual rights and freedoms.

This chapter discusses the findings of the quantitative and qualitative results that stemmed from student and faculty responses pertaining to the research questions that guided this study. A discussion and interpretation of findings is given first in relation to each individual research question, taking into consideration the theoretical perspective and relevant research. A brief summary of these findings is then given. Finally, the limitations of the study, implications for practice, suggestions for future research, and final conclusions are addressed last.

Addressing the Research Questions

Four research questions guided this mixed-methods study. Findings connected to each question are discussed individually.

Research Question 1: What are the attitudes and perceptions of both students with LD and faculty in terms of faculty preparedness to teach students with LD and the accommodation and support procedure for students with LD at the university level, and how do these compare?

Students and faculty had mixed perceptions of the issue of faculty preparedness and the ability of faculty to enact appropriate accommodations for meeting the needs of students with LD in the university classroom environment. Faculty knowledge of LD and faculty attitudes towards students with LD appeared to be key influences on students' success and academic growth in the microsystem-level classroom setting.

Knowledge of LD. In terms of knowledge, quantitative results suggested that some faculty felt more knowledgeable in meeting the needs of students with LD than some students with LD felt they were. In the qualitative interviews, faculty across various disciplines reported feeling comfortable in supporting students with LD in their classrooms and outlined various means in which they do this (adhering to DSO accommodations, modifying teaching and learning formats, providing one-on-one support), despite admittedly having limited knowledge of LD, what this entails for students, and knowledge of effective practices for support. Some instructors specifically highlighted their positive level of comfort enacting the accommodations that have been set out for students by the DSO (e.g. extra time, change of environment for testing, etc.) and many faculty participants seemed knowledgeable about the legal requirements of accommodation and what the accommodation process entailed. Citations of students, on the other hand, suggested instructors/professors' lack knowledge of alternative learning formats, teaching practices, and assessment structure as significant barriers to effective learning and appropriate accommodation, and alluded to the fact that instructors were comfortable enacting accommodations that were set out by the DSO but little beyond this.

Overall, both students and faculty described discrepancies in faculty knowledge of LD and uncertainly in faculty ability to enact appropriate forms of support for students with LD in the qualitative interviews, which was attributed to an overall lack of understanding of LD on part of instructors/professors. It appears, then, that while some faculty perceive feeling comfortable supporting students through various practices in their teaching, these practices may not be informed and/or effective for students in reality, which in turn, may impact on students' abilities to learn and develop academically in the classroom environment. In connection to theory, Bronfenbrenner and Morris (1998) suggest that in order for individual development to transpire in a given setting, enduring patterns of “proximal processes”—processes of progressively more complex interaction between an individual person and their environment must occur; factors in the microsystem (patterns of activities, social roles, interpersonal relations) experienced by the developing person “invite, permit, or inhibit engagement in sustained, progressively more complex interaction” with the immediate environment (Bronfenbrenner, 1994, p. 1645). In this study, patterns of “proximal processes” can be found in the overall learning process in the university context (acquiring new knowledge and learning new skills related to a chosen profession). Faculty, who play a critical role in student success and development in the higher-education setting (Tinto, 2012), therefore may in fact be inhibiting student academic growth and development because they do not have the knowledge to be able to effectively do so. These findings are consistent with current research that suggests many faculty do not have adequate knowledge of LD and/or adequate knowledge of effective classroom practices for students with LD to be able to fully support students (Murray, Flannery, & Wren, 2008; Murray, Wren, & Keys, 2008)

Factors that impact on knowledge. A number of exosystem-level factors (factors that indirectly influence the developing person) appeared to play a role in how accommodations and support were enacted for students, as this related to instructor/professor knowledge of LD. One key characteristic that appeared to influence faculty knowledge was training. Almost all instructors/professors noted that they have not had any means of formal training around disability and/or around teaching (generally) and the effective instruction of students with LD. Only one participant from the qualitative interviews reported having formal training in both realms (disability and pedagogy), while others noted informal training through either their research or by association of their department (e.g. their department specialized in understanding

disability in some way). Many students picked up on this factor, often either attributing instructor/professor lack of knowledge to their lack of training, or attributing instructor/professor helpfulness to prior knowledge and/or understanding of disability.

The number of years teaching and position type also appeared to influence faculty perceptions of their knowledge. Specifically, quantitative results showed significant differences between those with 15-20 years of teaching and those with 0-5 years of teaching; faculty with more years of teaching experience felt more knowledgeable about how to meet the needs of students with LD than those with 0-5 years. In terms of position type, instructors and lecturers felt more knowledgeable in meeting the needs of students than those in tenure-track positions. This finding could be due to differences in experience: Tenure-track professors are often “new” into the field of teaching, while the instructors/lecturers who participated in this study may have had greater experience in either disability and/or pedagogy than the tenure-track professors who participated.

Interestingly, some instructors/professors who participated in the qualitative interviews had personal experience with LD or disability generally (e.g. either they had a disability or had a family member who did). Overall, those who reported having had some type of training (formal or informal) or personal experience with LD in some regard felt they had greater knowledge/understanding of the experiences of students with LD and were more empathetic to the challenges these students faced on a day-day basis. This is consistent with research that suggests those who have had prior training and/or those who have worked previously with students with disabilities are better at understanding, assisting and supporting these students and are more likely to provide appropriate accommodations at the postsecondary level than those who don't (Berry & Mellard, 2002; Zhang et al., 2010). Teachers who have experienced disability and exclusion themselves in some way have also reported feeling more capable of integrating students with disabilities socially, emotionally, and scholastically than teachers who have not had direct experience with these phenomenon (Burns & Bell, 2010; Gal, Schreur, & Engle-Yeger, 2010; Vogel & Sharoni, 2011).

Another key exosystem-level factor that impacted indirectly on the student was the type of discipline/program work that the faculty member was associated with. Initially, it was presumed that those in Social Sciences would be more knowledgeable/accepting of LD than

those in Sciences/Math would be due to the “humanity” aspect of Social Sciences. However, results from this study suggest that this may instead depend on the nature of the programs that each discipline encompasses. Initial quantitative results did demonstrate that faculty from Social Sciences (Arts and Humanities programs) felt more knowledgeable than faculty in Sciences/Math (Science, Health Science, and Math programs). Interestingly, however, further quantitative results suggested that students in Social Sciences were not as confident in their instructors/professors abilities as their instructors/professors were. Qualitative results of both students and faculty added further depth to these findings: specifically, some students in Sciences/Math felt that their professors were more knowledgeable in meeting the needs of students with LD because of their specific area of expertise (e.g psychology, health sciences, etc). In further examination, it was revealed that students from Social Sciences *and* Sciences that were considered “helping professions” (e.g. psychology, health sciences, etc.) felt that instructors/professors were knowledgeable in meeting the needs with students with LD because they have a more advanced understanding of LD and/or have worked with this population specifically; faculty from Social Sciences *and* Sciences that were considered “helping professions” felt that they were knowledgeable in meeting the needs of students with LD for the same reasons. The critical component in determining whether academic discipline plays a role in faculty knowledge of LD therefore appears to be related to the specific type of program one is associated with and what type of knowledge/experience this brings; it is perceived that those in disciplines associated with “helping professions” have a greater understanding of the nature of LD (or disability generally) and ways to effectively support these. These results are again consistent with research that suggests those with specialized training in disability and knowledge of disability are better at supporting students with disability (Berry & Mellard, 2002; Zhang et al., 2010), but it is also consistent with current research that has found that students in the Humanities (which include “helping profession” sciences) often experience greater levels of support than students in the Natural (“hard”) Sciences and Business Sciences (Swart & Greyling, 2011).

Attitudes towards students with LD. Macrosystem-level factors of beliefs and attitudes toward disability also played a role in how students were supported in the classroom. In terms of attitude specifically, quantitative results suggested that faculty felt they held more positive attitudes towards students with LD than students with LD perceived they did. In the qualitative

interviews, specifically, many faculty highlighted inclusive philosophies of teaching and learning and the belief that students with LD should be included in the university context, which is consistent with much research that suggests faculty are generally supportive of students with disabilities in higher education (Hindes & Mather, 2007; Murray, Wren, & Keys, 2008; Vasek, 2005; Zhang et al., 2010).) However, some also appeared to place a condition on this belief, suggesting that students should be included in these environments only if they are able to keep up with the demands of it. Results from the student interviews suggested that some students felt that some faculty didn't believe in LD or the need for accommodations, which transpired through their interactions with professors. Evidently, this impacted on their desire to seek support from their professors in times of need. While instructors/professors felt they had a positive attitude toward students with LD, then, how they dealt with students in their interactions may have suggested otherwise.

Overall, students attributed instructors/professors' poor attitudes towards students with LD to instructors/professors' lack of knowledge of LD and their lack of understanding of how to best support students with LD. This is consistent with other research that suggests that differing attitudes and beliefs in faculty members regarding disability can be due to a lack of knowledge of disability legislation, their legal responsibilities to accommodate and support students, and/or a lack of understanding of students' needs and appropriate supports for these (Getzel & McManus, 2005). Instructors/professors who appear as unwilling to support students with LD in their personal interactions with students, therefore, may simply just not have the knowledge and understanding of LD on how to do so effectively. Connecting back to theory, interpersonal relations experienced by the developing person in a given setting have the ability to permit or inhibit progressively more complex interaction with the immediate environment (Bronfenbrenner, 1994). Faculty, in particular, and their attitudes and expectations for students in institutions of higher education, have the ability to influence student academic growth and success in these realms (Tinto, 2012). In this study, it appears that students may not seek assistance from faculty because of the perceived negative attitudes of some, which may be preventing students from accessing the appropriate support for their learning needs. Given that personal beliefs about the education of students with disabilities appears to be one of the greatest influences on the provision of accommodation for students with disabilities (Roberts, 2012;

Zhang et al., 2010), education around LD is crucial for faculty preparedness in meeting the needs of students with LD in the university classroom.

Factors that impact on attitude and willingness to support. Exosystem-level factors also appeared to influence attitude in some regards. Interestingly, unlike the knowledge factor, faculty discipline and type of program did not appear to impact on faculty attitude toward students with LD in the quantitative results. Findings from the qualitative results, however, again alluded to the fact that those in Social Sciences and “helping profession” Sciences were more willing to provide accommodation for students than those in “hard” Sciences/Math disciplines. Faculty participants from Social Sciences and “helping profession” Sciences appeared to be much more willing to accommodate and provide support to students than those in Sciences/Math did because many of these individuals had some amount of knowledge in this area (e.g. knowledge of disability). Student results aligned with this perspective in that many students from Social Sciences and “helping profession” Sciences perceived their faculty to be more approachable and willing to help than professors in Sciences/Math or non-helping profession programs. These results are consistent with prior research that found that those in Social Sciences disciplines like education, liberal arts, and architecture had more positive views of and attitudes toward students with disabilities than those in Science/Math disciplines like engineering, commerce, science, and industry (Rao, 2002).

Additionally, faculty participants with personal connection to disability (e.g. faculty who had an LD or disability or faculty who had family who had an LD or disability) also appeared to be more willing to support students with LD and other disabilities in their classrooms. Many participants who had this connection indicated that they felt more knowledgeable about LD and the struggles of students who had LD or other disabilities and were therefore more comfortable providing support to students in need. It appeared that faculty in this position also felt more empathetic towards students with LD and disabilities generally; they had a sense of the different challenges these students faced and because of this, they were more willing to provide assistance in whatever way was needed. This is consistent with research that suggests teachers and individuals who have experienced some form of exclusion themselves as a result of “difference” show greater sensitivity, empathy and desire to embrace the needs of students with disabilities than teachers who have not (Gal et al., 2010; Vogel & Sharoni, 2011). Overall, it appears that a

number of different factors impact on faculty attitude and willingness to support students with LD and it is imperative to have an understanding of these in order to foster greater inclusion and acceptance in higher education settings.

Research Question 2: What are the specific barriers of access to accommodation and support that students with LD experience in university and how do they navigate these challenges?

Students highlighted a number of challenges that they were faced with in the context of university. Primary barriers of access to support were related obtaining accommodation from instructors/professors, obtaining accommodation from the DSO, and to issues around stigma and self-advocacy.

Obtaining accommodation from instructors/professors. In the microsystem-level environment of the classroom, the main barrier of access to support appeared related to professor knowledge of LD and attitude toward accommodations. Specifically, while students suggested that instructors/professors were usually willing to provide accommodations set out by the DSO (e.g. extra testing time, change of environment for testing, use of technology, etc.), they were more hesitant (and even unwilling at times) to provide accommodations beyond these (e.g. changing the learning format or teaching style, changing assessment structure, etc.). Most students attributed this hesitation to either instructors/professors' lack of knowledge of effectively supporting students with LD, to faculty fear of compromising the integrity of the course and content in some way, or to the time investment required by professors to make these changes, which are consistent with the perspectives of faculty from this study and which are also consistent with previous research (Bourke, Strehorn, & Silver, 2000; Fuller, Bradley, & Healey, 2004; Hindes & Mather, 2007; Murray, Wren, & Keys, 2008; Zhang et al., 2010).

Interestingly, because only some instructional modifications to teaching are mandated by the DSO (this is often dependent on the occurrence of specific types of disabilities in the classroom), it is often up to the individual professor to decide when/if additional accommodations outside of those generally given (e.g. extra time, change of environment, use of technology) might be needed and what this should look like in their practice. But because most faculty at this level do not have any pedagogical training and because they do not receive

specific information on students' specific disabilities/areas of need, many simply do not tailor their practice to individual learning needs. As a result, it appears that some students with LD who would benefit from such types of accommodations are not receiving the full amount of support required for effective learning and academic development in the classroom environment, which is a consistent concern in other research in this area (Bigaj et al., 1999; Houck et al., 1992; Scott, McGuire, & Shaw, 2003).

Data from the qualitative interviews demonstrated that students chose to navigate this challenge in a few different ways. Some students suggested that they would approach their professors at the beginning of their courses, highlighting their specific areas of struggle and their learning needs. Others, however, did not do this because of the stigma attached to self-disclosing, reasons of around privacy, or difficulties communicating needs and/or interacting with others, all of which have been found to be potential issues for students with LD (DaDeppo, 2009; Denhart, 2008). Instead, many students suggested that they simply had to work harder to try to access and understand the learning material in a meaningful way. Often times this was in the form of reading and re-reading chapters from the course text, course notes, PowerPoint slides, and extra resources; conducting additional research on the topic area on their own; or accessing assistance/tutoring help from close peers. Overall, an evident theme that came out of the student interviews was that they felt they had to invest significantly more time in the learning process than their peers without LD. In connection to theory, Bronfenbrenner suggests that the "developing person" plays just as active a role in development as the external environment and its influences; individual characteristics of the individual (e.g. dispositions, resources, etc.) influence a person's capacity to affect the proximal processes of interaction that drive development (Bronfenbrenner & Morris, 1998) or success in the university (Tinto, 2012). The nature of LD and some of the limitations this may pose on students' abilities to interact with faculty in a meaningful way, therefore, may be inhibiting their ability to become an active agent in their own development. Though students in this study appear to be resourceful in that they are finding alternative ways to adapt to the learning demands of the context, it is evident that these challenges have impacted on their academic experience.

Obtaining accommodation from the DSO. Within the microsystem-level environment of the DSO, the main barrier of access to support appeared to be related to the departmental

structure or organization of the DSO. Specifically, students noted challenges with obtaining accommodation in a timely manner, accessing their counselor in times of need, and challenges related to the coordination of accommodations (scheduling of exams, arrangements of notetakers, etc). Despite the policies in place for each DSO in enacting accommodations (See Appendix A and B), these issues were perceived by students to be due to increasing number of students accessing support services through the DSO and the lack of qualified staff members/counselors to assist everyone in need. Interestingly, faculty also perceived this to be an issue for students; some faculty members cited the limited number of qualified staff in the DSO office as a challenge for both them and for students. Overall, the perceived understaffing of the DSO office and the difficulties in obtaining accommodations evidently impacted on the extent of support received and how students fared in their learning contexts; without direction from the DSO, it was reported that some faculty would not enact accommodations. At times, therefore, students were not able to get the learning support required for effective learning.

Though it appeared to be quite evident that these departmental-level issues posed barriers of access to support within the DSO, an interesting finding from these results was that it appeared as though some students did not feel a sense of personal responsibility in ensuring appropriate accommodations and supports were in place. Specifically, some students felt that the DSO processes should be more automatic (e.g. scheduling of exams, yearly requests for accommodation) with less involvement/effort required on their part in facilitating accommodation. One possible explanation is that the accommodation procedure itself may present an academic challenge for some in terms of managing the associated tasks involved. Problems managing academic tasks (organization, time management, focus) have been found to be an issue for some students with LD in higher education settings (DaDeppo, 2009). Connecting back to theory, students with LD may be lacking one or more of the individual characteristics that influences one's ability to take charge in their own active development (Bronfenbrenner & Morris, 1998; Tinto, 2012). The nature of LD, therefore again, may be contributing to difficulties around obtaining adequate learning support in this environment. Another possible explanation of this behaviour is that some students at this level may simply not understand their responsibilities in the accommodation process. Specifically, some research suggests that the shift from secondary to post-secondary schooling is difficult on many because the transition is one from "entitlement" of services in the secondary school system (where students were automatically provided with

accommodations) to “eligibility” in the post-secondary system (where students must qualify for services). With eligibility of services in the university context as an adult, however, comes more personal responsibility to ensure accommodations are set up and executed in accordance with one’s personal needs, and some students may not understand this (DaDeppo, 2009; Peterson, Van Dycke, Robertson, & Sedaghat, 2013; Shaw, 2009).

A second barrier of access to support within the context of the DSO was related to accessing accommodations for experiential learning. Results from the student interviews specifically highlighted the discrepancy between the provision of accommodation in classroom contexts and what this looks like in experiential /professional settings. Students in professional programs requiring clinical settings appeared to be affected the most in this study; specifically, those in clinical programs who required accommodation for learning in classroom settings were provided with accommodation, but when it came time for clinical placement, no accommodations could be provided through the DSO, the department, or the placement location. The issue in question appears to be a common one in universities with professional programs; students are accommodated throughout their coursework, but when it comes time for placements, many students struggle because there aren’t supports in place for them (Lee, 2014; Olkin, 2010). Interestingly, faculty also commented on this issue, drawing concern to the nature of in-class accommodations and how these translate beyond the classroom learning context into the workforce. Faculty were specifically concerned for student well-being in workplace settings that could not be adapted to suit certain ways of learning. Overall, it appears that this issue presents a significant challenge and potential hindrance to academic growth and development for some students in that without adequate support to facilitate their learning, students are unable to obtain the skills required for successful participation in the workforce. This particular issue also presents a challenge for the institution overall; universities will have to determine how students with LD will fit into such programs, and what supports can be made available to them should they choose this route of study.

In navigating the issue of lack of access to support services, students suggested that there was often very little that could be done. When an appointment with a counselor could not be granted in time of need, students simply had to wait for availability; often times, students noted that this could take weeks, and by then the issue was often resolved. Some students would seek

other supports in the meantime as they saw fit (e.g. writing centre supports, student development workshops, library tutorials, etc.) but other students reported that they preferred seeking assistance from their counselor because of familiarity with their learning needs. In terms of development, Bronfenbrenner and Morris (1998) suggest that instability in principal settings has the ability to interfere with proximal processes. As the DSO is a critical support system for individuals with LD (Tinto, 2012), this interference could potentially have detrimental effects on student learning in the university environment. In terms of accessing accommodations for experiential learning, for example, one student noted having to postpone her placement in hopes that some form of accommodation could be granted, while another student highlighted having to simply do her placement without accommodation and suffering academically because of this. Overall, these issues proved to be a significant barrier to learning, inclusion, and academic success in some realms for a number of students.

Stigma and self-advocacy. A third barrier of access to support and accommodation was the macrosystem-level influence of stigma associated with having LD as it impacted students across the university context generally. Stigmatization is often a cultural phenomenon where a negative attitude is adopted with regard to a group in general (Dovidio, Major, & Crocker, 2000). Individuals with LD are susceptible to stigmatization because they are a minority population that has traditionally been segregated from society (Lisle, 2011). From the qualitative data, it appeared that students felt stigma from their professors, from their peers, and even reportedly from DSO staff in certain incidents. In these occurrences, students were made to feel inferior to those without disabilities (academically and/or socially), singled out for being “different”, and often as though they just didn’t belong in the university context. Stigma from those in positions of power (professors, counselors) appeared to be the most detrimental on their development in the higher educational context, impacting in their academic self-efficacy, self-determination, and ability to self-advocate for themselves, which is consistent with prior research (DaDeppo, 2009; Denhart, 2008; Janiga & Costenbader, 2002; Zhang et al., 2010). Students noted that this held serious consequences for gaining appropriate accommodations; it often only took one negative experience with professors or officials to deter students from seeking future support or for self-advocating for their specific learning needs.

Interestingly, stigma appeared to impact on graduate students more so than undergraduate students in this study. Specifically, graduate students appeared much more conscious of the stigma associated with LD and the implications of the “label” of LD on their academic future (participation in research projects, study groups, etc.) and job prospects. As a result, these students were much less likely to request support for their learning needs formally (through the DSO office) and informally (to their peers, professors, and supervisors).

Qualitative data from the student interviews highlighted that students often navigated the challenge of stigma by simply avoiding self-disclosure; once stigma was felt in this environment, some students developed a “closed-off” approach to their disability, telling only those who they fully trusted or those who absolutely had to know. These findings are also consistent with research that suggests students avoid self-disclosure in order to avoid further stigmatization (Denhart, 2008; Field, Sarver, & Shaw, 2003; Janiga & Costenbader, 2002; Zhang et al., 2010). In terms of requests for accommodation, students who have been affected by stigma tended to shy away from contact with their professors, instead letting the DSO handle the facilitation of basic support. Students also reported avoiding professors/instructors and DSO counselors altogether who they knew were unsupportive. For graduate students who purposely didn’t self-disclose, many reported having to “pick up the slack” through self-teaching; because many didn’t use their accommodations, they would often have to compensate by spending more time learning the material on their own or with a tutor. As with other factors found in this study, stigmatization appeared to interfere with students’ abilities to engage with their immediate environments in progressively more complex ways (Bronfenbrenner, 1994). Students in this study, specifically, were unable to engage in the university environment academically and socially to different extents because of the stigma from various stakeholders. Because student engagement is a critical component of student persistence and success in higher education settings (Tinto, 2012), it is of utmost importance to address this issue and how it acts as a barrier to appropriate support for those who truly require it.

Research Question 3: How do students’ perceptions of the accommodation and support procedures employed in university (in terms of perceived barriers of access to accommodation and support, including faculty preparedness) impact on student development and growth in these settings?

Students described a number of ways that the accommodation and support procedure (including the challenges and successes faced within this) have impacted on their development and growth academically and socially.

Academic development and growth. Consistent with the theoretical perspectives guiding this study, academic development and growth appeared to be connected to the type and amount of support received from various sources in the university context (Bronfenbrenner, 1977; Bronfenbrenner & Morris, 1998; 2006; Tinto, 1975; 1993; 2012). If it was perceived that support was adequate in meeting students' needs, then academic development was perceived to be on track; if it was perceived that support was not adequate in meeting students' needs, then academic development was perceived as being hindered in some way.

The main support systems examined in this study were those of the immediate classroom instructor/professor and those from the DSO. In the micro-system level environment of the classroom, when support was not perceived to be adequate, students reported continually having to “work harder” to keep up with their non-disabled peers. The time invested in learning the material, completing class assignments, and studying for course assessments was perceived to be much greater in comparison to peers and proved to be a recurring theme throughout the qualitative interviews—a theme that was also consistent with current research (McGregor et al., 2016). While most of this likely relates to the nature of LD itself and the learning challenges this presents (DaDeppo, 2009; Skinner & Lindstrom, 2003; Smith, English, & Vasek, 2002), it was perceived by some students that with more effective support from faculty, this process could be made easier. As a result, some students felt that their development was hindered to some extent within the classroom context.

Within the microsystem-level environment of the DSO, when support was not perceived to be adequate or when support was unavailable, students were often left to compensate in some regard with the resources that were available to them. Students in this study appeared to be fairly self-sufficient; if the support needed was skill development, students would seek assistance from somewhere else (peer, TA, tutor, university workshops); if the support needed was in the form of accommodation, some students noted speaking to the instructor/professor directly. Overall, while the occasional lack of support was perceived to be an inconvenience to students, it wasn't often considered to be a hindrance on their growth or development in the university context. In fact,

many students attributed positive development to the DSO and the services offered within this because of the crucial role this office plays in getting students the support that they need for effective learning, even despite the long waits for appointments.

Attitudinal barriers within the university context (a macrosystem-level influence) generally appeared to be the biggest cause for concern for obtaining accommodations in the microsystem. Specifically, negative attitudes towards LD and/or the accommodation procedure (types of accommodations, the need for accommodations) from instructors/professors, DSO staff, and peers, clearly impacted on students' self-efficacy and their self-determination in the higher education context. Students who experienced negativity from others were less likely to self-disclose their disability to others and were less likely to self-advocate for their learning needs for fear of being stigmatized to an even greater extent. Consistent with current research, these issues appeared to cause a great deal of stress, anxiety, and mental health concerns for students with LD and many reported that all of these issues impacted on their motivation to succeed in the higher education environment (DaDeppo, 2009; Denhart, 2008; Janiga & Costenbader, 2002; Wilson, Armstrong, Furrie, & Walcot, 2009; Zhang et al., 2010). Overall, almost all students perceived stigma and/or the negative attitudes of others to be detrimental to their learning and development at one point or another through their university career as it hindered their ability to fully participate in and interact with their environments.

Social development and growth. Social development and growth appeared to be dependent on context (e.g. the immediate learning classroom environment vs. outside of this) and how comfortable/open students were with their LD.

In the microsystem-level context of the classroom, some participants in this study suggested that their experiences have had some impact on their participation in their classes. Due to the perceived stigma and attitudinal barriers evident in this context, in particular, some students reported having some level of social anxiety with regard to speaking in class (fear of sounding "stupid"), participating in group work (contributing to the academic/social extent as others), and voicing concerns to their professors. As a result of this anxiety, students suggested that both their academic growth (e.g. "participation grades") and their social growth (e.g. befriending peers) suffered to some extent, which is consistent with research in this area of study (DaDeppo, 2009; Janiga & Costenbader, 2002). This phenomenon appeared to take less of a toll

on students who were more comfortable/open with their disability, though even many of these students reported being concerned with how they were perceived by others.

Outside of the immediate classroom environment, social anxiety seemed be less of an issue. Specifically, some students reported participating in extracurricular activities and social events that were organized by the university, and many noted other activities that they participated in outside of the school context altogether, which is interesting considering that some research demonstrates that individuals with LD often having difficulties integrating into social realms (Howarth, Morris, Newlin, Webber, 2014). Interestingly, however, a number of students highlighted the challenges around balancing their school work with outside activities. Specifically, some students felt that they couldn't participate in such activities because of the demands that their LD placed on academics. It appears, then, that social withdrawal in some students may not necessarily be due to social anxiety, but rather to the fear of falling behind academically if they do participate.

Person-context “fit” and integration. Overall, despite the challenges faced in the university context around obtaining support and accommodation for their learning needs, many students in this study described their university experience as a positive one, where, for the most part, they felt like they fit in. Bronfenbrenner’s theory suggests that “competence” or successful development in a given environment occurs as a direct result of the congruency between the individual and the context in which they are developing (Bronfenbrenner & Morris, 2006). Similarly, Tinto’s theory suggests that “integration” and successful development in the higher education context specifically depends on the individual’s experiences within the academic and social systems of the post-secondary context (Tinto, 1975). In Tinto’s model specifically, it is suggested that a student’s academic and social experiences in the post-secondary context can cause the individual to review or modify their goals and institutional commitments in ways that lead to either persistence or dropout. For students in this study, qualitative data suggested that students’ experiences were not negative enough to cause them to consider the latter; though students highlighted that the extent of their participation in these settings was challenged at times because of the many issues they faced in the support process, most students in this study felt that they had successfully achieved a “person-context fit”, where they have grown and developed in the university environment both intellectually and socially.

A number of factors could contribute to this finding. From an ecological perspective, students may have a number of external protective factors for which they rely on outside of the university context that help improve perseverance and reduce the likelihood of risk (e.g. supportive family, peer groups, etc.) (Bronfenbrenner, 1979; Jenson & Fraser, 2011; Ungar, 2011). Protective factors have been found to play a critical role in individuals with risk factors (such as those with LD) as these can help to build resilience and overcome differences (Jenson & Fraser, 2011). Additionally, students may already have an established level of resiliency from managing various challenges over the years. Resilient individuals are those who experience successful outcomes or adaptation despite adverse or negative experiences (Garmezy & Masten, 1991; Luthar & Zigler, 1991). In their study of college undergraduates, for example, Hall, Spruill and Webster (2002) found that students with LD had greater resiliency and greater motivation for the need to achieve than students without LD because of their goal-directed nature. Similarly, in their study of graduate students with disabilities, Verdinelli and Kutner (2016) found that many students held a personal drive to face adversity and conquer obstacles, which impacted positively on their perseverance and growth. Overall, for students with LD in this study, it appeared that even despite factors working against them, many held positive views about their growth, development, and success in post-secondary environments.

Research Question 4: What are the perceived challenges that faculty members face in providing support to students with LD in the university setting and how do they navigate these?

Faculty highlighted a number of challenges that they were faced with in supporting students with LD in the context of university. Primary challenges included having enough knowledge to effectively support students, having enough time to effectively support students, and supporting students in a way that was fair to all individuals within the classroom.

Having enough knowledge. The main challenge that faculty members appeared to be faced with was having enough tailored and specific knowledge (of LD generally, and of students' specific challenges) to be able to effectively meet their needs in the classroom context. It was quite evident that instructors/professors felt challenged in their own lack of knowledge and awareness of LD generally (See Research Question 1); what came out of the qualitative faculty data more specifically, as well however, was that some faculty felt that they

also weren't provided with enough information of students' specific challenges to be able to fully support these students in their classroom learning. A number of factors appeared to contribute to this issue: the nature of LD as an "invisible disability" has made it difficult for faculty to identify and support automatically (Fuller et al., 2004); the lack of student self-identification and disclosure has prevented faculty from acknowledging students directly to learn more about their specific needs; and the DSO only provides a list of required accommodations for faculty to abide by in the accommodation procedure—no specific information on the nature of the disability or why certain supports are needed. Ultimately, despite being respectful and supportive of policies around privacy and confidentiality, faculty appear to feel left in the dark with the accommodation process and how to effectively support students with LD without any tailored or specific information provided to them. Overall, alongside of their lack of knowledge of LD and a lack of formal training in supporting students with LD, these issues appeared to pose significant challenges to how instructors/professors are able to meet the needs of students with LD at the microsystem-level of the university classroom.

Having enough time. A second challenge identified by many through the qualitative interviews was the issue of time; while many faculty appeared to be keen on supporting students with LD in whatever ways that they could, many cited the challenge of time as a main issue in doing so. Specifically, it was perceived by many instructors/professors that going above and beyond the DSO recommended accommodations to further change their teaching style, modify their learning formats, or change the structure of their assessments would pose a significant challenge on themselves and their already-demanding schedules. This challenge, furthermore, appeared to be exacerbated by class size and the amount of students they had in each class; instructors/professors who taught small graduate classes (less than 30 students), for example, perceived the act of providing additional accommodations to be less arduous than instructors/professors who taught large entry-level undergraduate classes (more than 100 students). The specific concern of faculty here was how to effectively tailor instruction to meet the needs of students with (and without) disabilities within these, assuming that each and every person has individual learning needs/preferences. Many faculty, therefore, appeared to find the task of having to accommodate varying learning needs to be burdensome and onerous, which is consistent with a study by Hindes and Mather (2007) who found that faculty found it cumbersome in terms of both time and workload to provide accommodations for all.

Supporting students fairly. A third challenge for faculty surrounded the idea of providing accommodations in a way that was “fair” to other students. Specifically, some faculty members questioned the efficacy and need for certain accommodations and whether or not these provided some kind of advantage to students with LD that they were not providing for other students. Specific types of accommodations proved to be cause for concern; accommodations that altered the format of assignments or assessments primarily caused concern for the academic integrity of the course and program and concerns about course standards. Interestingly, some faculty also reported challenges around their own leniency with providing accommodations. Specifically, some instructors/professors noted concerns of being taken advantage of by students who required accommodations; a main issue for some faculty, therefore, was how to provide accommodations to students without being a “pushover”. These themes are consistent with other research on faculty attitudes toward accommodations which described faculty uncertainty in the accommodation procedure (Bourke, Strehorn, & Silver, 2000; Fuller, Bradley, & Healey, 2004; Hindes & Mather, 2007; Murray, Wren, & Keys, 2008; Zhang et al., 2010). Results from the qualitative student interviews were also consistent with these themes as they demonstrated that students perceived some faculty to be hesitant and even unwilling at times to provide accommodations for these very reasons; some students felt faculty were unreceptive to accommodation requests, often having difficulty obtaining basic forms of accommodation (e.g. notes) (Farone, Hall, & Costello, 1998; Dowrick, Anderson, Heyer, & Acosta, 2005). Overall, these results are quite concerning as research suggests faculty members’ beliefs about certain accommodations can effect the provision of accommodation (Bourke, Strehorn, & Silver, 2000). It appears that faculty may not be providing accommodation to students with LD in the microsystem-level context of the classroom in ways that can support them because of a lack of understanding around why such supports are needed and how they work for students with LD.

Summary of Findings

Overall, in accordance with the theoretical perspective of this study, a number of factors appear to impact on the academic growth and development of students with LD in the university setting; characteristics of the individual (the “developing person”), the environment, and how these factors interact were central to understanding this phenomenon.

Students with LD, first, represent a unique and underrepresented population in contexts of higher education that are often faced with unique academic, social and emotional challenges (DaDeppo, 2009; Getzel & Thoma, 2008). LD, specifically, is often characterized by academic challenges such as difficulty with coursework (level and/or workload) and problems managing academic tasks (organization, time management, task-focus); social challenges such as communicating needs to others, interacting with peers, faculty, and/or staff, and social isolation; and emotional challenges such as weak interpersonal skills, low self-esteem, and mental health problems. (DaDeppo, 2009; Howarth et al, 2014; Wilson et al., 2009). The nature of LD in and of itself appeared to present many challenges for students participating in this study, and as a result of these, many encountered difficulties meeting the demands of the post-secondary environment.

The university context, furthermore, presented a number of environmental factors that influenced how students experienced the support and accommodation within the university context. In the microsystem-level context of the classroom, faculty were the main point of access to accommodation to students; their knowledge of LD and their attitudes toward students with LD appeared to be the biggest influences on how students with LD were academically supported in the classroom environment. In the micro-system level context of the DSO, the availability of services appeared to be critical to the support procedure for students; the perceived lack of qualified staff in coordinating accommodations was shown to be a considerable issue for students with LD who required specific supports. Across the university context, the macrosystem level influence of disability-related stigma, furthermore, appeared to complicate the accommodation process for many students with LD; stigma in this study was perceived to come from faculty, DSO staff, and peers and was perceived to occur in relation to students' needs for support and accommodation.

The interactions between these factors appeared to influence the academic growth of students with LD in these environments at least to some extent in that these students were not able to participate in learning activities to the same degree as students without LD. Overall, the combination of challenges inherent to having LD and challenges presented from the external environment appeared to pose some barriers to effective learning in the university context for students with LD. Interestingly, however, though it is clear from these findings that the external

environment is impacting on the student (the “developing person”), it is not clear how the student is impacting on the environment. Both Bronfenbrenner and Tinto’s theories postulate that development and growth is dependent on the reciprocal interactions between the person and their environment; the individual is therefore said to influence the people and institutions within their environments as much as they are influenced by them (Bronfenbrenner, 2001; Bronfenbrenner, 1998, Tinto, 2012). In this study, it appears that the environment has not been influenced to a fully significant extent as of yet; while universities have attempted to adapt to meet the needs of students with LD (e.g. DSO office, the use of accommodations, attempted compliance to disability-related legislation) there are still key areas in desperate need of improvement (e.g. faculty training). Altogether, it is important for universities and institutions of higher education (generally) to continually examine how the needs of students (with and without disabilities) are being met in the contexts of learning; the individual strengths and needs of learners must be considered in relation to the surrounding environment for effective learning and academic growth and success to occur.

Limitations

In interpretation of the research findings, limitations of the study must also be considered. This study had several limitations that may affect the generalizability of the results.

One such limitation was that the sample sizes of both students and faculty were relatively small in comparison to the larger populations (e.g. poor response rate). Additionally, both samples represented only a small portion of students and faculty from only two university settings. In conducting psychological research where the goal is to be able to generalize findings to the larger population, a general rule of thumb is to select as large a sample as possible from the population in order to reduce the potential risk of sampling error (Creswell, 2008; Field, 2013). In order to achieve greater generalizability to the population, therefore, it would have been helpful to collect larger samples of students and faculty from more university settings.

A second limitation with regard to the sample population of students relates to representativeness. With regard to gender, first, this study saw significantly lower participation of male students than female students in both the survey component (30% male, 69% female, 1% unidentified) and the interview component (18% male, 82% female), which limits the generalizability of findings to the wider population. Additionally, most students who took part in

this study were from the Social Sciences disciplines (80% of students who participated in the survey, and 55% of students who participated in the interviews). Though the perspectives of male students and students in Sciences/Math disciplines were showcased to some extent in the qualitative interviews, results from the student data should be interpreted with the understanding that the sample size predominately reflected the views and perspectives of female students from Social Sciences disciplines. Larger populations that are more representative of both genders and disciplines are therefore needed to increase generalizability.

Another limitation relates to the quantitative methodology and the use of self-report questionnaires. Specifically, both student and faculty surveys required participants to self-report their personal beliefs around learning as a student with LD (students) and teaching students with LD (faculty) in the university setting. Self-reporting surveys can be subject to bias, which may have caused students and faculty to respond in ways that were considered to be more socially acceptable or socially desirable than in ways that truly reflected their personal beliefs or experiences (Miller, 2012). The responses given, therefore, may not have accurately reflected the views of the sample of each population, leading to potential response bias (Creswell, 2008). The goal of the convergent mixed-methods approach that was used, however, aimed to mitigate this; the qualitative interviews that were conducted after the quantitative surveys helped to clarify specific aspects of the survey with a subset of the sample population. Though these responses may also have been subject to personal bias, it was our belief that the mixed-methods approach provided a well-rounded view of the phenomenon.

A fourth limitation may relate to the qualitative interview approach used. As mentioned previously, in order to bridge any potential power differentials between myself and my research participants, I felt that it was important to outline my research goals, my identity, my biases, and my assumptions prior to conducting interviews in order to establish a sound relationship and rapport with these individuals. Specifically, I made it clear to my participants that I did not have a learning disability myself or any personal experience with the issues that individuals with learning disabilities may face. I also identified myself as an educator in higher education settings who was interested in learning more about those with LD in order to improve my practice and the learning experiences for those who I taught. These factors could have potentially influenced participant responses in a negative way in that students may have viewed me as someone who

couldn't connect to their stories. They may also have viewed me as a person in a position of power (teacher), which also could have skewed the honesty and openness of their responses. Though I did not get a sense that participant responses were skewed in any way because of this potential limitation, it is still important to acknowledge.

A final limitation related to the specific quantitative surveys used in this study. Specifically, the student survey used for this research (the *SPFPQ*) has not been validated in populations beyond those included in this study. Additionally, the faculty survey for the research (the *FPQ*) was modified for purposes of this study, and has also not been validated in additional populations. Though both surveys were found to have robust reliability, greater generalization could be gained once the surveys are validated within other populations.

Implications for Practice

Findings from this study suggest there are some evident discrepancies between what the learning needs of students with LD are in higher education settings and how these are in fact being met in the classroom environment at this level. Several implications related to faculty development and improvements in the DSO can thus be made.

Increasing faculty knowledge of LD. First and foremost, there is an evident need for faculty training and professional development in the area of learning disabilities as per the findings related to faculty knowledge of LD and faculty ability to implement effective supportive practices for students with LD. Appropriate academic support for students in institutions of higher education has been found to be one of the most important factors related to student success at this level (Tinto, 2012). Given the range of abilities in students at the post-secondary level, faculty members need to have an understanding of LD as well as a solid grasp of inclusive teaching and learning strategies in order to meet the needs of all students within their classrooms. Topics of professional development should include (but may not be limited to): knowledge of LD and implications for learning; an understanding of the issues that students with LD face in educational settings, and teaching/learning strategies to support the unique learning needs of students within their classrooms. At the classroom level, specifically, instead of simply relying on the accommodation procedures provided through documentation and the disabilities services office, faculty members need to learn about and consider students' individual needs, the larger environmental context, and the instructional delivery method for greater accessibility (Scott,

McGuire, & Shaw, 2003). Research efforts have demonstrated that incorporating differentiated instruction and universal design for learning (UDL) principles into classroom instruction within post-secondary environments, for example, can facilitate more inclusive and accessible instruction and classroom environments at this level (Lombardi & Murray, 2011; Lombardi, Murray, & Dallas, 2013; Scott, McGuire, & Shaw, 2003). Professional development opportunities around these topics should be frequent and reflective of current research regarding best practices for supporting students with LD. It was also suggested by faculty themselves in this study that such PD opportunities should be mandatory for all.

Increasing faculty sensitivity and awareness. In conjunction with knowledge, there is also an evident need for sensitivity training and training of more inclusive pedagogical approaches for teaching and accommodating students with LD. Specifically, given our findings on perceived negative faculty attitudes towards students with LD, there is a need for faculty to develop more empathetic approaches when working with these students at the classroom level. Differing attitudes and belief systems in faculty toward students with disabilities (generally) have been shown to be connected to a lack of knowledge/understanding of disability legislation, their legal responsibilities to accommodate and support students, and/or a lack of understanding of students' needs and appropriate supports for these (Getzel & McManus, 2005). Negative attitudes and varying belief systems of faculty have proven to impact on student self-concept and can affect student participation as students can be made to feel that they do not belong in that environment (Erten, 2011; Getzel & Thoma, 2008; Roberts, 2012; Vasek, 2005; Wilson, Getzel, & Brown, 2000). In order for students to be successful at this level then, they need to be able to ask for and secure appropriate accommodations in a way that makes them feel safe and included. Social support for students in higher education that facilitates students' sense of belonging and membership in the institution has been found to impact on student success in these environments (Tinto, 2012). Faculty therefore need to develop more understanding approaches in serving students with LD at the classroom level so that successful learning can occur.

Improving DSO services. Findings from both student and faculty perceptions of the accommodation procedure in this study suggest that there could be greater improvement to services from the DSO. For students, this includes greater accessibility to counselors and services and greater communication regards types of services that are available to them. The

work of DSO staff is quite comprehensive: they facilitate academic services and accommodations for students, work to improve various forms of barriers within the campus environment, and offer various forms of counseling, amongst other things (McCleary-Jones, 2007). For students specifically, these individuals act as advocates for students with disabilities to ensure their learning needs within the university setting are effectively met (Komives & Woodard, 2003). Given our finding that these offices are often understaffed and overtaxed with the number of students who require assistance, efforts should be made at the institutional level to increase the number of qualified support staff to be able to assist more students in obtaining and securing accommodation.

For faculty, greater improvement to services from the DSO should also include greater education and outreach initiatives regarding the need for accommodations. One of the roles of the DSO in many institutions is to provide outreach and consultation to various departments and units within the academic setting (McCleary-Jones, 2007). A specific need for outreach identified in this study was regarding education around the need for and use of accommodations. Specifically, many faculty in this study highlighted concerns of the use of specific types of accommodations, concerns of how accommodations might compromise the integrity of the course, and concerns of fairness in general and providing “unfair advantages” to students with LD. It needs to be made clear to faculty, then, that the purpose of accommodations is not to lower academic standards, provide an advantage over others, or to exempt students from completing course requirements, but rather to provide students with LD an equitable means of accessing the learning material to ensure they have an equal opportunity in their education (Ontario Human Rights Commission, 2003). It is believed that increased outreach and educational initiatives for faculty would assist in serving to do this.

Suggestions for Future Research

The current study investigated the how the needs of students with LD were being met in the context of the university environment from the perspective of students and faculty. The nature of this mixed-methods student aimed to compare student experiences in learning in university settings with faculty experiences in teaching students with LD in these settings. Currently, an abundance of research exists relating to factors that influence faculty ability to teach students with disabilities, however, limited research exists on the lived experiences of

students with LD in post-secondary settings, and even less research exists on how the perspectives compare. This study contributed to current research by examining the student perspective on this issue and identifying discrepancies between students' learning needs and faculty ability to meet these in the university context. Additional research into the student experience specifically and the factors that impact on the success of students with LD in the university context would assist in a more thorough understanding the student experience at this level. Further comparative studies that examine the role of multiple stakeholders (e.g. faculty, students, the DSO), as well, could add to this body of knowledge by examining the phenomenon as it is experienced by all parties.

This research study aimed to examine the issue of faculty preparedness in meeting the needs of students with LD at the classroom level in university contexts. Similar to an abundance of research in this area, it found that many faculty did not feel prepared to meet the needs of students with LD in these environments. Though it is evident that professional development in the area of understanding and supporting students with LD is required, it is not clear to what extent such interventions might work. Further research might examine the effects of program intervention on faculty preparedness to teach students with LD using an experimental (pre/post) design format.

This study also examined the perceived development of students with LD in contexts of higher education as related to challenges they faced and the amount of support they were provided in these contexts. The study assumed a research design where student (and faculty) perceptions were examined at a single point in time. Only a "snapshot" of the participant experience, therefore, was examined; students were asked to reflect back on their experiences in discussing their growth and development, but these factors were not charted or examined over an extensive period of time. Further research in this area might consider a longitudinal approach, where development and growth are tracked over an extended period of time to allow for a greater understanding of the developmental process and the specific factors that contribute to or inhibit this.

Conclusion

This study aimed to examine how the needs of students with LD were being met in the university context from the perspective of both students and faculty. Prior research in this area

has primarily examined faculty perceptions of their ability and willingness to support students with disabilities (generally) in contexts of higher education; very little research has examined this issue from the perspective and experiences of the greatest stakeholder in this situation—the student. This research helps to address a significant gap in this topic area by including the student perspective in comparison to faculty perspectives. It also contributes to research efforts in this area by offering a survey instrument that helps to capture and assess the student perspective—the Student Perceptions of Faculty Preparedness Questionnaire (*SPFPQ*), adapted from the Faculty Preparedness Questionnaire (*FPQ*) (Hansen, Dawson, & Specht, 2017).

Students with LD are attending university and higher education settings at increasing rates, and it is evident from this study that they face a myriad of challenges associated with obtaining adequate support for their learning needs in these contexts. Their success in these environments depends the quality of support received in the immediate learning context and beyond. Faculty, especially, play a crucial role in this process; their ability to provide accommodation to students with LD has been shown to impact on student achievement at this level. This study suggests, however, that faculty may not be meeting the needs of students with LD in these environments as effectively as they could be—despite their desire to do so. Specifically, faculty knowledge of LD and appropriate pedagogical practices to support students with LD, and faculty attitudes toward students with LD have been found to play a pivotal role in how students are able to access appropriate support for their learning needs in these environments.

Implications for practice are quite evident overall; faculty training and professional development specifically related to LD is clearly needed to assist faculty in being more prepared to meet the need of students with LD, and to ensure that these students receive the appropriate support for their learning that is required for successful outcomes in these settings. Institutions of higher education need to enforce greater levels of training for faculty around topics of disability and provide appropriate resources to help faculty improve their teaching pedagogy. An overall effort needs to be made from all stakeholders involved in the higher education setting to ensure that students with LD are supported in their academic endeavors.

References

- Abu-Hamour, B. (2013). Faculty attitudes toward students with disabilities in a public university in Jordan. *International Education Studies*, 6(12), 74–81. doi:10.5539/ies.v6n12p74
- Accessibility for Ontarians with Disabilities Act, 181999, §§ 11, Cong. (2005).
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.
- Americans With Disabilities Act of 1990. PL 101–336. 42 U.S.C. § 12101 et seq.
- Allsopp, D. H., Minskoff, E. H.; & Bolt, L. (2005). Individualized course-specific strategy instruction for college students with learning disabilities and ADHD: Lessons learned from a model demonstration project. *Learning Disabilities Research & Practice*, 20, 103-118.
- Andres, L. (2012). *Designing and doing survey research*. London: SAGE.
- Bartlett, J.E., Kotrlik, J.W., & Higgins, C. C. (2001). Organizational research: Determining sample size in survey research. *Information Technology, Learning, and Performance Journal* 19(1), 43-50.
- Bazeley, P. (2013). *Qualitative data analysis: Practical strategies*. London: Sage.
- Becker, M., Martin, L., Wajeeh, E., Ward, J., & Shern, D. (2002). Students with mental illnesses in a university setting : faculty and student attitudes, beliefs, knowledge, and experiences. *Psychiatric Rehabilitation Journal*, 25(4), 359–368.
- Bengtsson, M. (2016). How to plan and perform a qualitative study using content analysis. *NursingPlus Open*, 2, 8-14.
- Bennett, D.A., (2001). How can I deal with missing data in my study? *Australian and New Zealand Journal of Public Health*, 25(5). 464-469.
- Berends, M. (2006). Survey methods in educational research. In J.L. Green, G. Camilli, & P.B. Elmore (Eds.), *Handbook of complementary methods in education research* (pp. 623-640). Washington, DC: AERA.
- Berger, J. B. & Milem, J. F. (1999). The role of student involvement and perceptions of integration in a causal model of student persistence. *Research in Higher Education*, 40, 641-664.
- Berk, L.E. (2000). *Child Development* (5th Ed.) Boston: Allyn and Bacon. 23-38.
- Berry, G., & Mellard, D. (2002, May). *Current status on accommodating students with disabilities in selected community and technical colleges: Fall 1999–Spring 2001*. Lawrence: University of Kansas. (ERIC Document Reproduction Service No. ED470385)

- Bigaj, S. J., Shaw, S. F., & McGuire, J.M. (1999). Community technical college faculty willingness to use and self-reported use of accommodation strategies for students with learning disabilities. *The Journal for Vocational Special Needs Education*, 21, 3-14.
- Bolt, S. E., Decker, D. M., Lloyd, M., & Morlock, L. (2011). Students' perceptions of accommodations in high school and college. *Career Development for Exceptional Individuals*, 34(3), 165–175. doi:10.1177/0885728811415098
- Bourke, A. B., Strehorn, K. C., & Silver, P. (2000). Faculty members' provision of instructional accommodations to students with LD. *Journal of Learning Disabilities*, 33(1), 26–32.
- Braxton, J. M., Milem, J. F., & Sullivan, A. S. (2000). The influence of active learning on the college student departure process. *Journal of Higher Education*, 71, 569-590.
- Braxton, J. M., Vesper, N., Hossler, D. (1995). Expectations for college and student persistence. *Research in Higher Education*, 36, 595-612.
- Brenner, M.E. (2006). Interviewing in educational research. In J.L. Green, G. Camilli, & P.B. Elmore (Eds.), *Handbook of complementary methods in education research* (pp. 357-370). Washington, DC: AERA.
- Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, 32, 513-531.
- Bronfenbrenner, U. (1994). Ecological models of human development. In T. Husen & T.N. Postlethwaite (Eds.), *International encyclopedia of education* (2nd ed., Vol. 3, pp. 1643-1647). Oxford, UK: Pergamon/Elsevier Science.
- Bronfenbrenner, U. (2005). *Making human beings human: Bioecological perspectives on human development*. Cornell University, USA: Sage.
- Bronfenbrenner, U. & Morris, P.A. (1998). The ecology of developmental process. In R. M. Lerner & W. Damon (Eds.), *Handbook of child psychology: Vol. 1 Theoretical models of human development* (5th ed., pp.993-1028). New York: John Wiley.
- Bronfenbrenner, U. & Morris, P.A. (2006). The biological model of human development. In R. M. Lerner & W. Damon (Eds.), *Handbook of child psychology: Vol. 1 Theoretical models of human development* (6th ed., pp.793-828). New York: John Wiley.
- Burgstahler, S., Duclos, R., & Turcotte, M. (2000). *Preliminary findings: Faculty, teaching assistant, and student perceptions regarding accommodating students with disabilities in postsecondary environments*. Seattle: University of Washington, DO-IT. (ERIC Document Reproduction Service No. ED456718)
- Burns, E. & Bell, S. (2010). Voices of teachers with dyslexia in Finnish and English further and higher educational settings. *Teachers and Teaching*, 16(5), 529-543.

- Canadian Association of Disability Service Providers in Postsecondary Education. (1999). *Towards developing professional standards of service: A report on support for students with disabilities in postsecondary education in Canada*. Kingston, ON.
- Canadian Human Rights Act, R.S., 1985, c. H-6, s. 38; 2003, c. 22, s. 137(E), Canadian Charter of Rights and Freedoms § 15 (1982).
- Chambers, T., Bolton, M., & Sukhai, M. (2013). Financial barriers for students with non-apparent disabilities within Canadian postsecondary education. *Journal of Postsecondary Education and Disability*, 26(1), 53–66.
- Chambers, T., & Deller, F. (2011). Chances and choices of low-income students in Canada and England, pp. 49-71. In Adrianna Kezar (Ed.) *Recognizing and serving low-income students in higher education: An examination of institutional policies, practices and culture*. Routledge: New York.
- Cohen, J., (1992). A power primer. *Psychological Bulletin*, 112(1), 155-159.
- Colker, R., Shaywitz, S., Shaywitz, B., & Simon, J. (n.d.) *Comments on Proposed DSM-5 Criteria for Specific Learning Disorder from a Legal and Medical/Scientific Perspective*. Retrieved from <http://dyslexia.yale.edu/CommentsDSM5ColkerShaywitzSimon.pdf>
- Connelly, F. M. & Clandinin, D. J. (2006). Narrative inquiry. In J.L. Green, G. Camilli, & P.B. Elmore (Eds.), *Handbook of complementary methods in education research* (pp. 477-487). Washington, DC: AERA.
- Cox, D. H., & Klas, L. D. (1996). Students with learning disabilities in Canadian colleges and universities: A primer for service provision. *Journal of Learning Disabilities*, 29(1), 93–97. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/8648280>
- Cox, D., & Walsh, R. M. (1998). Questions to consider in policy development for postsecondary students with disabilities. *Journal on Postsecondary Education and Disability*, 13(2).
- Creswell, J.W. (2008). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (3rd ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
- Creswell, J. W. & Plano-Clark, V. L. (2011). *Designing and conducting mixed methods research* (2nd ed.). Thousand Oaks, CA: SAGE.
- DaDeppo, L. M. W. (2009). Integration factors related to the academic success and intent to persist of college students with learning disabilities. *Learning Disabilities Research & Practice*, 24(3), 122–131. doi:10.1111/j.1540-5826.2009.00286.x
- Dattalo, P. (2008). *Determining sample size: Balancing power, precision, and practicality*. New York, NY: Oxford University Press.

- de Leeuw, E. D., Hox, J. J., & Dillman, D.A. (Eds.). (2008). *The international handbook of survey methodology*. New York: NY: Taylor & Francis.
- Denhart, H. (2008). Deconstructing barriers: Perceptions of students labeled with learning disabilities in higher education. *Journal of Learning Disabilities, 41*(6), 483–497.
- Denzin, N., & Lincoln, Y. (2005). Chapter 1: Introduction: The discipline and practice of qualitative research. In N. Denzin & Y. Lincoln (3rd Ed.), *The Sage handbook of qualitative research*, (pp. 1-32). Thousand Oaks, CA: SAGE.
- Dona, J., & Edmister, J. H. (2001). An examination of community college faculty members' knowledge of the Americans with Disabilities Act of 1990 at the fifteen community colleges in Mississippi. *Journal of Postsecondary Education and Disability, 14*, 91-103.
- Dovidio, J.F., Major, B., & Crocker, J. (2000). *Stigma: Introduction and overview*. In T. F. Heatherton, R. E. Kleck, M. R. Hebl, & J. G. Hull (Eds.), *The social psychology of stigma* (pp. 1-30). New York: Guilford.
- Dowrick, P., Anderson, J., Heyer, K., & Acosta, J. (2005). Postsecondary education across the USA: Experiences of adults with disabilities. *Journal of Vocational Rehabilitation, 22*, 41-47.
- Downe-Wambolt, B. (1992). Content analysis: Method, applications and issues. *Health Care for Women International, 13*, 313–321.
- Duquette, C., & Fullarton, S. (2009). "With an LD you're always mediocre and expect to be mediocre": Perceptions of adults recently diagnosed with learning disabilities. *Exceptionality Education International, 19*(1), 51-71.
- Employment and Social Development Canada (2016). *Accessibility legislation: What does an accessible Canada mean to you?* Retrieved from <https://www.canada.ca/content/dam/esdc-edsc/documents/programs/disability/consultations/No.653-Layout%20Discussion%20Guide-EN.PDF>
- Erten, O. (2008). Facing challenges : Experiences of young women with disabilities attending a Canadian university. *Journal of Postsecondary Education and Disability, 24*(2), 101–114.
- Estrada, L., Dupoux, E., & Wolman, C. (2006). The relationship between locus of control and personal-emotional adjustment and social adjustment to college life in students with and without learning disabilities. *College Student Journal, 40*, 43-54.
- Farone, M. C., Hall, E. W., & Costello, J. J. (1998). Postsecondary disability issues: An inclusive identification strategy. *Journal of Postsecondary Education and Disability, 13*, 35-45.
- Field, S., Sarver, M. D., & Shaw, S. F. (2003). Self-determination: A key to success in postsecondary education for students with learning disabilities. *Remedial and Special*

Education, 24(6), 339-349.

Fletcher, J. M. (2012). Classification and identification of learning disabilities. In B. Wong & D. L. Butler (Eds.), *Learning about learning disabilities* (1-25). London: Academic Press.

Flick, U. (2002). *An introduction to qualitative research* (2nd ed.). London: SAGE.

Foley, N. (2006). Preparing for college: Improving the odds for students with learning disabilities. *College Student Journal*, 40(3), 641–645.

Freeman, J.G., Harrison, A., & Holtermann, E. (2012). Navigating the post-secondary landscape. In B. Wong & D. L. Butler (Eds.), *Learning about learning disabilities* (355-375). London: Academic Press.

Fuller, M., Bradley, A. & Healey, M., (2004). Incorporating disabled students within an inclusive higher education environment. *Disability & Society* 19(5), 455–468.
<https://doi.org/10.1080/0968759042000235307>

Gal, N., Schreur, N., & Engel-Yeger, B. (2010). Inclusion of children with disabilities: Teachers attitudes and requirements for environmental accommodations. *International Journal of Special Education*, 25(2), 89-99.

Garnezy, N., & Masten, A. S. (1991). The protective role of competence indicators in children at risk. In E. M. Cummings, A.L. Greene, & K. H. Karraker (Eds.), *Life-span developmental psychology: Perspectives on stress and coping* (pp. 151–174). Hillsdale, NJ: Lawrence Erlbaum Publishers.

Getzel, E. E., & Briel, L. W. (2006). Pursuing postsecondary education opportunities for individuals with disabilities. In P. Wehman (Ed.), *Life beyond the classroom: Transition strategies for young people with disabilities* (355-368). Baltimore: Paul H. Brookes.

Getzel, E., Briel, L., & Kregel, J. (2000). Comprehensive career planning: The VCU Career Connections Program. *Work*, 14, 41-49.

Getzel, E. E., & McManus, S. (2005). Expanding support services on campus. In E. E. Getzel & P. Wehman (Eds.), *Going to college: Expanding opportunities for people with disabilities* (139- 154). Baltimore: Paul H. Brookes.

Getzel, E. E., McManus, S., & Briel, L. W. (2004). An effective model for college students with learning disabilities and attention deficit hyperactivity disorders. *Research to Practice*, 3(1). Retrieved March 13, 2014 from http://www.ncset.org/publications/researchtopractice/NCSETResearchBrief_3.1.pdf

Getzel, E. E., & Thoma, C. A. (2008). Experiences of college students with disabilities and the importance of self-determination in higher education settings. *Career Development for Exceptional Individuals*, 31(2), 77–84. doi:10.1177/0885728808317658

- Gregg, N. (2007). Underserved and unprepared: Postsecondary learning disabilities. *Learning Disabilities Research & Practice*, 22(4), 219–228. doi:10.1111/j.1540-5826.2007.00250.x
- Guba, E. G. (Ed). (1990). *The paradigm dialog*. Newbury Park, CA: Sage.
- Hansen, K. Dawson, D., & Specht, J. (2017). Developing an instrument to assess faculty perceptions of preparedness for teaching students with learning disabilities. *Exceptionality Education International*, 27, 99-115.
- Harrison, A. G., & Holmes, A. (2012). Easier said than done: Operationalizing the diagnosis of learning disability for use at the postsecondary level in Canada. *Canadian Journal of School Psychology*, 27(1), 12–34. doi:10.1177/0829573512437021
- Harrison, A.G., Nichols, E., & Larochette, A. (2008). Investigating the quality of learning disability documentation provided by students in higher education. *Canadian Journal of School Psychology*, 23(2), 161-174.
- Henderson, C. (2001). *College freshmen with disabilities: A biennial statistical profile*. Washington, DC: Heath Resource Center.
- Hindes, Y., & Mather, J. (2007). Inclusive education at the post-secondary level: Attitudes of students and professors. *Exceptionality Education Canada*, 17(1), 107–128.
- Horn, L., Berkold, J., & Bobbit, L. (1999). Students with disabilities in postsecondary education: A profile of preparation, participation, and outcomes. *Report of the National Center for Education Statistics*. Washington, DC: U.S. Department of Education.
- Houck, C. K., Asselin, S. B., Troutman, G. C., & Arlington, J. M. (1992). Students with learning disabilities in the university environment: A study of faculty and student perceptions. *Journal of Learning Disabilities*, 25(10), 678–684.
- Howarth, S., Morris, D., Webber, M., & Newlin, M. (2014). Health and social care interventions which promote social participation for adults with learning disabilities: A review. *British Journal of Learning Disabilities*. 44, 3-15. doi:10.1111/bld.12100
- Husserl, E. (1913). *Ideas*. London: George Allen and Unwin. Republished 1962, New York: Collier.
- Hutchinson, N. L. (2008). Current Canadian research on students with learning disabilities: Should we be bridging research on cognition and socially influenced cognition? *Exceptionality Education Canada*, 18(1), 135–146.
- Individuals With Disabilities Education Improvement Act of 2004, 20 U.S.C. § 1400 et seq. (2004).

- Janiga, S. J., & Costenbader, V. (2002). The transition to postsecondary education for students with learning disabilities: A survey of college service coordinators. *Journal of Learning Disabilities*, 35(5), 463–470.
- Jenson, J. M., & Fraser, M. W. (2011). A risk and resilience framework for child, youth, and family policy. In J. M. Jenson and M.W. Fraser (Eds.), *Social policy for children and families: A risk and resilience perspective* (pp. 5–24). Thousand Oaks, CA: Sage Publications.
- Johnson, B., & Christensen, L. (2008). *Educational research: Quantitative, Qualitative, and mixed approaches* (3rd ed.). London: United Kingdom, Sage Publications.
- Komives, S. R., and Woodard, D. (2003). *Student services: A handbook for the profession*. (4th ed.). San Francisco: Jossey-Bass Publishers, Inc.
- Learning Disabilities Association of Canada (2015). *LD defined: Official definition of learning disabilities*. Retrieved July 19, 2017 from <http://www.ldac-acta.ca/learn-more/ld-defined>
- Learning Disabilities Association of Ontario (2015). *Learning disabilities statistics*. Retrieved July 19, 2017 from <http://www.ldao.ca/introduction-to-ldsahd/articles/about-lds/learning-disabilities-statistics/>
- Lee, B. A. (2014, January/February). Students with disabilities: Opportunities and challenges for colleges and universities. *Change: The Magazine of Higher Learning*, 40-45.
- Lerner, R. (2005). Foreward. In U. Bronfenbrenner (Ed.), *Making human beings human: Bioecological perspectives on human development* (pp. ix-xxvii). Thousand Oaks, CA: SAGE.
- Levin, B (2008). Thinking about knowledge mobilization. Paper presented at the Symposium of the Canadian Council on Learning and the Social Sciences and Humanities Research Council of Canada. May 15-18, 2008.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage Publications, Inc.
- Lindstrom, J. (2007). Determining appropriate accommodations for postsecondary students with reading and written expression disorders. *Learning Disabilities: Research and Practice*, 22, 229–236. doi:10.1111/j.1540-5826.2007.00251.x
- Lisle, K. (2011). Identifying the negative stigma associated with having a learning disability. Retrieved from Bucknell University Digital Commons Honors Theses.
- Lombardi, A. R., & Murray, C. (2011). Measuring university faculty attitudes toward disability : Willingness to accommodate and adopt Universal Design principles. *Journal of Vocational Rehabilitation*, 34, 43–56. doi:10.3233/JVR-2010-0533

- Lombardi, A., Murray, C., & Dallas, B. (2013). University faculty attitudes toward disability and inclusive instruction: Comparing two institutions. *Journal of Postsecondary Education and Disability, 26*, 221-232.
- Long, T., & Johnson, M. (2000). Rigour, reliability and validity in qualitative research. *Clinical Effectiveness in Nursing, 4*, 30-37.
- Luthar, S. S., & Zigler, E. (1991). Vulnerability and competence: A review of research on resilience in childhood. *American Journal of Orthopsychiatry, 6*, 6-21.
- Madaus, J. W., Banerjee, M., & Hamblet, E. C. (2010). Learning disability documentation decision making at the postsecondary level. *Career Development for Exceptional Individuals, 33*(2), 68-79. doi:10.1177/0885728810368057
- Madaus, J. W., & Shaw, S. F. (2006). The impact of the IDEA 2004 on transition to college for students with learning disabilities. *Learning Disabilities Research & Practice, 21*(4), 273-281. doi:10.1111/j.1540-5826.2006.00223.x
- Matthews, P. R., Anderson, D. W., & Skolnick, B. D. (1987). Faculty attitude toward accommodations for college students with learning disabilities. *Learning Disabilities Focus, 3*, 46-52.
- McCleary-Jones, V. (2007). Learning disabilities in the community colleges and the role of disability services departments. *Journal of Cultural Diversity, 14*(1), 43-47.
- McCloy, U. & DeClou, L. (2013). Disability in Ontario: Postsecondary education participation rates, student experience and labour market outcomes. Toronto: Higher Education Quality Council of Ontario.
- McGregor, K., Langenfeld, N., Van Horne, S., Oleson, J., Anson, M., & Jacobson, W. (2016). The university experiences of students with learning disabilities. *Learning Disabilities Research and Practice, 31*(2), 90-102. DOI: 10.1111/ldrp.12102
- McGuire, J. M. (2010). Considerations for the transition to college. In S. F. Shaw, J. W. Madaus, & L. L. Dukes (Eds.), *Preparing students with disabilities for college success: A practical guide for transition planning* (7-35). Baltimore: Brookes.
- Milem, J. F., & Berger, J. B. (1997). A modified model of college student persistence: Exploring the relationship between Astin's theory of involvement and Tinto's theory of student departure. *Journal of College Student Development, 38*, 387-400.
- Miller, A. L. (2012). Investigating social desirability bias in student self-report surveys. *Educational Research Quarterly, 36*(1), 30-47.
- Ministry of Training, Colleges, and Universities: Postsecondary Education Division (2008, November). *Disabilities statistics at Ontario universities for discussion at IDIA*. Paper

presented at the Inter-University Disability Issues Association meeting, Toronto, Ontario, Canada.

- Morse, J. M. (1991). Approaches to qualitative-quantitative methodological triangulation. *Nursing Research*, 40, 120-123.
- Murray, C., Flannery, B. K., Wren, C. (2008). University staff members' attitudes and knowledge about learning disabilities and disability support services. *Journal of Postsecondary Education and Disability*, 21, 73-90.
- Murray, C., Goldstein, D., Nourse, S. & Edgar, E. (2000). The postsecondary school attendance and completion rates of high school graduates with learning disabilities. *Learning Disabilities Research*, 15(3), 119-127.
- Murray, C., Lombardi, A., Wren, C. T., & Keys, C. (2009). Associations between prior disability-focused training and disability-related attitudes and perceptions among university faculty. *Learning Disability Quarterly*, 32(2), 87-100.
- Murray, C., & Wren, C. T. (2003). Predictors of the grade point averages of college students with learning disabilities. *Journal of Learning Disabilities*, 36(5), 407-415.
- Murray, C., Wren, C.T., & Keys, C. (2008). Faculty perceptions of students with learning disabilities: Correlates and group differences. *Learning Disability Quarterly*, 31(3), 95-113.
- National Council on Disability. (2003, September). *People with disabilities and postsecondary education* (Position Paper). Retrieved March 12, 2014 from <http://www.ncd.gov/publications/2003/Sept152003>
- Nichols, E. Harrison, A., McCloskey, L., & Weintraub, L. (2002). *Learning Opportunities Task Force, 1997 to 2002: Final Report*. Toronto, ON.
- Nind, M. (2008). *Conducting qualitative research with people with learning, communication, and other disabilities: Methodological challenges* [Review paper for the ESRC National Centre for Research Methods], 1-24. Retrieved from <http://eprints.ncrm.ac.uk/491/1/MethodsReviewPaperNCRM-012.pdf>.
- Nova Scotia Accessibility Legislation (2017). *Bill No. 59: An act respecting accessibility in Nova Scotia*. Retrieved from: <http://www.nslegislature.ca/legc/PDFs/annual%20statutes/2017%20Spring/c002.pdf>
- Olkin, R., (2010). The three Rs of supervising graduate psychology students with disabilities: Reading, writing, and reasonable accommodations. *Women and Therapy*, 33, 73-84.
- Ontario Human Rights Code, R.S.O. Chapter H.19 (1990).
- Ontario Human Rights Commission. (2003). *The Opportunity to Succeed: Achieving Barrier-free Education for Students with Disabilities*. Retrieved July 28, 2017 from

<http://www.ohrc.on.ca/en/opportunity-succeed-achieving-barrier-free-education-students-disabilities/post-secondary-education>.

- Onwuegbuzie, A. J. & Teddlie, C. (2003). A framework for analyzing data in mixed methods research. In A. Tashakkori & C. Teddlie (Eds.) *Handbook of mixed methods in social and behavioural research* (pp. 351-383). Thousand Oaks, CA: Sage.
- Ouellett, M. L. (2004). Faculty development and universal instructional design. *Equity & Excellence in Education*, 37(2), 135–144. doi:10.1080/10665680490453977
- Pascarella, E. T., & Terenzini, P.T. (2005). *How college effects students: Vol. 2, a third decade of research*. San Francisco, CA: Jossey Bass.
- Patton, M. Q. (2002). *Qualitative research & evaluation methods*. Thousand Oaks, CA: SAGE.
- Perry, N. (2008). What's hot in learning disabilities research in Canada? Introducing the research of early career scholars. *Exceptionality Education Canada*, 18 (1), 3-8.
- Peterson, L., Van Dycke, J.L., Robertson, R., & Sedaghat, J.M., (2013). Promoting student transition from entitlement services to eligibility resources. *Intervention in School and Clinic*, 49(2), 99-107. doi: 10.1177/1053451213493173
- Philpott, D., & Cahill, M. (2008). A Pan-Canadian perspective on the professional knowledge base of learning disabilities. *International Journal of Disability, Community and Rehabilitation*, 7(2).
- Postareff, L., Lindblom-Ylänne, S., & Nevgi, A. (2007). The effect of pedagogical training on teaching in higher education. *Teaching and Teacher Education*, 23(5), 557–571. doi:10.1016/j.tate.2006.11.013
- Priest, H., Roberts, P., & Woods, L. (2002). An overview of different approaches to the interpretation of qualitative data. Part 1: Theoretical issues. *Nurse Researcher*, 10(1), 30-42.
- Rao, M. S. (2002). Students with disabilities in higher education: Faculty attitudes and willingness to provide accommodations. Unpublished doctoral dissertation, University of Arkansas, Fayetteville.
- Rao, S., & Gartin, B. C. (2003). Attitudes of university faculty toward accommodations to students with disabilities. *The Journal for Vocational Special Needs Education*, 25(2-3), 47-55.
- Rehabilitation Act of 1973. PL 93–112. 29 U.S.C. § 794.
- Ritchie, S. M. & Rigano, D. L. (2001). Researcher-participant positioning in classroom research. *Qualitative Studies in Education*, 14(6). 741-756.

- Roberts, B. L. (2012). Beyond psychometric evaluation of the student-task determinants of accommodation: Why students with learning disabilities may not need to be accommodated. *Canadian Journal of School Psychology, 27*(1), 72–80. doi:10.1177/0829573512437171
- Ryan, A.B. (2006). Post-positivist approaches to research. In Antonesa, M., Fallon, H., Ryan, A.B., Ryan, A., & Walsh, T. with L. Borys (Eds.), *Researching and writing your thesis: A guide for postgraduate students* (pp. 12-28). Maynooth: MACE.
- Scott, S. S. & Gregg, N. (2000). Meeting the evolving education needs of faculty in providing access for college students with LD. *Journal of Learning Disabilities, 33*(2), 158-167.
- Scott, S., McGuire, J., & Shaw, S. (2003). Universal design for instruction: A new paradigm for adult instruction in postsecondary education. *Remedial and Special Education, 24*(6), 369–379.
- Schafer, J.L. (1999). Multiple imputation: A Primer. *Statistical Methods in Medical Research, 8*, 3-15.
- Shaw, S. F. (2009). Transition to postsecondary education. *Focus on Exceptional Children, 42*(2), 1–16.
- Skinner, M. E., & Lindstrom, B. D. (2003). Bridging the gap between high school and college : Strategies for the successful transition of students with learning disabilities. *Preventing School Failure, 47*(3), 132–137.
- Smith, S. G., English, R., & Vasek, D. (2002). Student and parent involvement in the transition process for college freshmen with learning disab. *College Student Journal, 36*(4), 491–503.
- Statistics Canada. (2012). *Canadian Survey on Disability 2012*. Retrieved from <http://www.statcan.gc.ca/pub/89-654-x/89-654-x2014003-eng.htm>
- Swart, E. & Greyling, E. (2011). Participation in higher education: Experiences of students with disabilities. *Acta Academica, 43*(4), 81-110.
- Teddlie, C. & Tashakkori, A. (2003). Major issues and controversies in the use of mixed methods in the social and behavioural sciences. In A. Tashakkori & C. Teddlie (Eds.) *Handbook of mixed methods in social and behavioural research* (pp. 3-50). Thousand Oaks, CA: SAGE.
- Teddlie, C. & Tashakkori, A. (2009). *Foundations of mixed methods research*. Thousand Oaks, CA: SAGE.
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*(1), 89–125.
- Tinto, V. (1993). *Leaving College: Rethinking the causes and cures of student attrition*. Chicago: University of Chicago Press.

- Tinto, V. (2012). *Completing college: Rethinking institutional action*. Chicago: University of Chicago Press.
- Trainor, A. A. (2001). Commentary: Using mixed methods to transform special education research. *Learning Disability Quarterly*, 34(3), 219-221.
- Trammell, J. (2009). Red shirting college students with disabilities. *The Learning Assistance Review*, 14(2), 21–31.
- Troiano, P. F. (2003). College students and learning disability: Elements of self-style. *Journal of College and Student Development*, 44, 404-419.
- Troiano, P.F., Leifeld, J.A., & Trachtenberg, J.V. (2010). Academic support and college success for postsecondary students with learning disabilities. *Journal of College Reading and Learning*, 40, 35-44.
- Tsagris, D. & Muirhead, B. (2012). Evaluating postsecondary supports for Ontario students with learning disabilities. Toronto: Higher Education Quality Council of Ontario.
- Ungar, M. (2011). The social ecology of resilience: Addressing the contextual and cultural ambiguity of a nascent construct. *American Journal of Orthopsychiatry*, 81, 1–17.
- Vasek, D. (2005). Assessing the knowledge base of faculty at a private, four-year institution. *College Student Journal*, 39(2), 307–315.
- Venkatesh, V., Brown, S. & Bala, H. (2013). Bridging the qualitative-quantitative divide: Guidelines for conducting mixed-methods research in information systems. *MIS Quarterly*, 37(1), 21-54.
- Verdinelli, S. & Kutner, D. (2016). Persistence factors among online graduate students with disabilities. *Journal of Diversity in Higher Education*, 9(4), 353-368.
- Vogel, G. & Sharoni, V. (2011). 'My success as a teacher amazes me each and every day-- perspectives of teachers with learning disabilities. *International Journal of Inclusive Education*, 15(5), 479-495.
- Vogel, S. A. (1993). The success of college students with learning disabilities: Factors related to educational attainment. *Learning Disabilities Research and Practice*, 8, 35-43.
- Wagner, M., Newman, L., & Cameto, R. (2004). Changes over time in the secondary school experiences of students with disabilities. A report of findings from the National Longitudinal Transition Study (NLTS) and the National Longitudinal Transition Study-2 (NLTS2). Menlo Park, CA: SRI International.
- Wagner, M., Newman, L., Cameto, R., & Levine, P. (2005a). Changes over time in the early postschool outcomes of youth with disabilities. A report of findings from the National Longitudinal Transition Study (NLTS) and the National Longitudinal

- Transition Study- 2 (NLTS2). Menlo Park, CA: SRI International.
- Wagner, M., Newman, L., Cameto, R., Garza, N., & Levine, P. (2005b). After high school: A first look at the postschool experiences of youth with disabilities. A report from the National Longitudinal Transition Study- 2 (NLTS2). Menlo Park, CA: SRI International.
- Williamson, P.T. (2000). Attitudes of the Troy State University Dothan faculty toward students with disabilities. Retrieved from WorldCat, OCLC: 44857670.
- Wilson, A. M., Armstrong, C., Furrrie, A., & Walcot, E. (2009). The mental health of Canadians with self-reported learning disabilities. *Journal of Learning Disabilities*, 42(1), 24–40. doi:10.1177/0022219408326216
- Wilson, K., Getzel, E., & Brown, T. (2000). Enhancing the post-secondary campus climate for students with disabilities. *Journal of Vocational Rehabilitation*, 14, 37–50.
- Wolforth, J. (1998). *Policy and provision of support services in Canadian universities*. In A. Hurst (Ed.). Higher education and disabilities: International approaches (45-60). England: Ashgate.
- Wolforth, J. (2012). Why we need reliable, valid, and appropriate learning disability assessments: The perspective of a postsecondary disability service provider. *Canadian Journal of School Psychology*, 27(1), 58–71. doi:10.1177/0829573512437025
- Wolforth, J., & Harrison, A. (2008b). *LD and ADD assessment, diagnosis and accommodation in Canadian post secondary institutions*. Paper presented at the British Dyslexia Association, Annual Conference, Harrogate, UK.
- Zhang, D., Landmark, L., Reber, A., Hsu, H., Kwok, O., & Benz, M. (2010). University faculty knowledge, beliefs, and practices in providing reasonable accommodations to students with disabilities. *Remedial and Special Education*, 31(4), 276-286.

Appendices

Appendix A: University #1 Guidelines for Accommodation (DSO)

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]
[REDACTED] | [REDACTED] | [REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] Documentation Guidelines

[REDACTED] facilitates academic accommodations and provides supports to students with permanent disabilities or temporary and/or cyclical health conditions.

Definition of Disability

The definition of disability should be interpreted very broadly. "Disability" is based on Human Rights and the intersection between impairment and the environment. Impairment is a functional issue which causes limitations or difficulties in completing a task or action, or participating in life's activities.

Accommodations and supports for students with a diagnosed Learning or Health Disability is a shared responsibility between the student, [REDACTED] Accessibility Services [REDACTED] faculty and all university personnel. Students are required to provide the appropriate documentation to [REDACTED] and are advised to communicate requests as early as possible to allow the service provider adequate time to respond.

Temporary Disabilities and Academic Accommodations

Students who experience a temporary, short-term medical, physical or mental health condition unrelated to a documented permanent disability, but affecting academic functioning for one to three academic terms may require temporary academic accommodations. Similarly, interim accommodations may be provided pending receipt of documentation.

A **brief** medical issue that is common to the general population (such as a flu virus) and requires academic consideration should be discussed with an instructor who will then advise the student of the appropriate university policy (i.e., exam deferral, make-up exam) and accommodate the student.

Appendix A: University #1 Guidelines for Accommodation (DSO) (CON'T)

██████████
████████████████████

████████████████████
████████████████████

Temporary Mental Health Issues

For students who are experiencing academic difficulties due to a **temporary mental health issue**, ██████ can provide support in the form of referrals in order to help students access other available health, assessment, and therapeutic resources. Temporary mental health accommodations may be arranged on an individual basis while students are actively engaged in addressing their particular symptoms and/or pending documentation.

Please note: Prior history of receiving accommodations in previous academic environments is not a guarantee that accommodations will be granted at ██████ University. ██████ makes independent judgement about the appropriateness of all accommodation requests.

Documentation Guidelines

The following guidelines list the documentation components required to confirm a need for, and assist in the determination of appropriate academic accommodation.

Documentation must:

- Support the request for accommodations or academic adjustments and/or aids and devices.
- Verify the functional impact of the disability on the student's academic performance.
- Be issued by a qualified practitioner who is certified in the areas of the disability such as:
 - Family Physician
 - Psychologist
 - Psychiatrist
 - Audiologist
 - Neurologist
 - Ophthalmologist
 - Occupational Therapist
 - Optometrist
 - RN (EC)

This information will assist us in determining the most appropriate aids, services and accommodations which will address the functional limitations of the disability.

Should you have any questions about documentation, please feel free to contact the ██████████ staff and we will be happy to provide more information and/or answer any of your questions. You can reach the department by calling ██████
██████████

Appendix A: University #1 Guidelines for Accommodation (DSO) (CON'T)



Guidelines for Required Documentation of a Medical, Physical, Sensory or Mental Health Disability

Please provide:

A completed **Medical Documentation Form** which is available from the



OR

A letter from a licensed medical practitioner, qualified in the appropriate specialty area (or a general medical practitioner who has preferably been treating the patient over the last 6 months), which must be current (within the last 6 months) and include:

1. Name.
2. Date of birth.
3. Nature of disability or health condition.
4. Date(s) of initial diagnosis(es) and any pertinent treatment.
5. Frequency and duration of care.
6. Current functional impact/assessment including (where appropriate): Physical tolerance/activity; engagement; gross and fine motor function; situational responses; cognition; impact on communication, memory, concentration, test-taking, group work, attendance, etc.
7. Assistive devices, specialized equipment, environmental adaptations required.
8. Expected progression or stability.
9. Patient's recommended follow-up.
10. Name of practitioner, professional credentials, address, phone number, typed, dated and signed.

Students with a hearing loss (deaf, deafened, hard of hearing) should also include:

1. Audiologist report.
2. Use of assistive devices, e.g. hearing aids, FM System, etc.

Students with a visual impairment should also include:

1. Visual acuity (best corrected).
2. Visual field limitations.

Appendix A: University #1 Guidelines for Accommodation (DSO) (CON'T)



Guidelines for Required Documentation of a Learning Disability

These guidelines describe standard criteria for documenting a Learning Disability according to the Diagnostic and Statistical Manual, V (DSM-V) and the Learning Disabilities Association of Canada (LDAC)/Learning Disabilities Association of Ontario (LDAO) diagnostic criteria and associated supporting document.

1. **A copy of your latest psychoeducational assessment**, which has been completed within the last three to five years by a registered psychologist or psychological associate. The assessment should have been completed within the last 3 years or a diagnosis made at 18 years of age or older. Documentation that is more than 3 years old is reviewed on an individual basis.
2. A report must contain a clear diagnostic statement indicating the presence of a learning disability. Statements such as “suggest the presence of” or “may indicate” are not acceptable diagnostic statements. Also, the report should make every effort to identify the underlying psychological processing deficit.
3. A previous I.E.P. or letter from your high school/college detailing the types of academic accommodations you have utilized in the past few years.

A psychoeducational assessment report should contain the following:

1. A detailed interview to obtain relevant background information.
2. Review of relevant educational records.
3. A formal intelligence test (e.g., WAIS IV).
4. A formal measure of academic achievement (e.g., WIAT II, WJ-III).
5. Note: the WRAT is not considered an acceptable measure when used on its own.
6. A formal measure of Memory skills (e.g., WRAML-2, WMS IV).
7. Summary section should include a detailed description of how the student’s psychological processing deficit impacts their current learning endeavours.
8. Efforts to rule out differential diagnoses
9. Recommendation section should include ideas that may assist in meeting the students disability related needs.

Appendix A: University #1 Guidelines for Accommodation (DSO) (CON'T)

Guidelines for Documentation of Adult Attention-Deficit/Hyperactivity Disorder

In order to support the needs of adults with Attention-Deficit/Hyperactivity Disorder (AD/HD) in a university setting, it is necessary that supporting documentation be based on the following criteria. It is strongly recommended that students also be screened for possible vision, hearing, or health problems that may be contributing to attention and/or academic difficulties.

A clinical assessment by a licensed mental health professional, such as a psychiatrist, neuropsychologist, a clinical or educational psychologist or psychological associate, using the current version of the DSM is required. Evaluation by clinicians who have extensive training and experience in differential diagnosis with adults is recommended.

This assessment should include:

1. Early indicators of difficulties with attention and/or hyperactivity and impulsivity in the student's school history and/or through consultation with someone who has known the student well over a significant period of time (e.g., family, teachers)
2. A thorough family, social, academic and/or occupational history which includes consultation with individuals who know the student well
3. Information regarding the functional impact of the student's disability on his/her ability to participate in the post-secondary educational setting
4. Recent diagnosis (within the last 3 years) or a diagnosis made at 18 years of age or older. Documentation that is more than 3 years old will be evaluated on a case-by-case basis.

recognizes that previous evaluation by a physician/pediatrician may be accepted by the current evaluator as evidence of the existence of the disorder since childhood, but may be questioned as the sole indicator of adult AD/HD and the functional impact in the post-secondary environment. Therefore, students with AD/HD who request accommodations and support at the university level may be asked to provide a current assessment report to support the request for academic accommodations. can provide assistance with screening, interim accommodation, funding information and referral.

Content of the Assessment Report

The assessment report should include the following:

- Disclosure of AD/HD as a diagnostic statement, including the nature (type) of the disorder as outlined in the current version of the DSM.

Appendix A: University #1 Guidelines for Accommodation (DSO) (CON'T)

- Information regarding the functional impact and severity of symptoms that will influence academic performance.
- Implications for appropriate accommodations in a university environment indicated by the recommendations.
- Impact of any co-existing conditions (psychiatric and/or learning) that may be affecting functioning.
 - Other associated disorders (e.g., anxiety disorders, mood disorders) frequently co-exist with AD/HD. It is therefore important to consider such information when recommending appropriate support.
- Assessment of cognitive and academic functioning.
 - Due to the fact that learning disabilities frequently co-exist with attention-deficit disorders, it is important to investigate the student's learning profile, and the presence of possible learning disabilities, in order to provide appropriate support.
- Assessment and description of social-emotional functioning either through formal assessment and/or clinical interview to rule out other explanations for the difficulties.

Appendix B: University #2 Guidelines for Accommodation (DSO)

(Support Services) plays a central role in (*School Name*) efforts to ensure that its academic programs are accessible for all students at the graduate and undergraduate levels. (Support Services) arranges academic accommodation for classes, exams, internships and other course or program activities. (Support Services) also provides digital and Braille textbooks, accessible campus transportation, learning strategy instruction for students with learning disabilities, access to computer labs that are equipped with assistive technology, referrals for assessments and other services, and bursaries for students who meet OSAP's eligibility criteria.

Academic Accommodation:

Academic accommodation consists of arrangements that allow a student with a disability a fair opportunity to engage in academic activities and fulfill essential course and program requirements.

Accommodation does not remove essential requirements of a course or program. It does not fundamentally alter content of exams, standards for assigning grades, or requirements that students independently demonstrate their knowledge of course material.

The following are examples of accommodations:

- access to alternative format textbooks (e.g., electronic, Braille)
- access to accessible versions of powerpoint slides and other documents on course websites
- use of sign-language interpreters in class
- use of an FM system in class
- permission to tape record lectures
- writing exams in a quiet location
- use of extra time when writing exams
- use of assistive technology when writing exams (e.g., a computer equipped with specialized software)
- use of an assistant in labs.
-

An accommodation is a response to unique challenges that a student faces given his or her disability and particular program requirements. Because of the individualized nature of accommodation, students and prospective students are encouraged to meet with an (Support Services) counsellor to obtain information about specific accommodations and services that may be available to them.

Appendix B: University #2 Guidelines for Accommodation (DSO) (CON'T)

Requesting Accommodation:

(School name) undergraduate and graduate students who are registered in a faculty on the main campus request accommodation by contacting (Support Services). Similarly, students who are registered at (Associated Colleges) request accommodation through (Support Services) on the main campus.

Arranging Accommodation:

Step 1

Contact (Support Services) to schedule an appointment with a counsellor. Students should meet with a counsellor as soon as they have registered in courses.

The purpose of this meeting is to determine accommodations that (Support Services) will recommend to students' instructors, and to inform students of procedures and other services that may be useful to them.

Students living in distant locations from (Location of School) may begin the process of arranging accommodations in a phone appointment.

Please note that students who meet with a counsellor after classes have begun may be unable to write fall exams with accommodation. Similarly, students who first meet with a counsellor after October (or February) may be unable to write December exams (or April exams) with accommodation. Please contact (Support Services) for specific deadlines.

Step 2

Provide documentation of disability to (Support Services). Students should send documentation to (Support Services) prior to their appointment, if possible. If this is not possible, they should bring documentation to their appointment. Please refer to Documentation Requirements on this site.

Step 3

After steps 1 and 2, students who are requesting exam accommodations are required to communicate to Exam Services (which administers exams) their intentions to write specific tests and exams with that department. (Support Services) counsellors will show students how to sign up for exams using Exam Services' (ES) website. Counsellors also will show students how to use the site to check exam locations and start times.

Appendix B: University #2 Guidelines for Accommodation (DSO) (CON'T)

Important Notes:

1. Please note that students who meet with a counsellor after classes have begun may be unable to write fall exams with accommodation. Similarly, students who first meet with a counsellor after October (or February) may be unable to write December exams (or April exams) with accommodation. Please contact (Support Services) for specific deadlines.
2. Students must inform their (Support Services) counsellor of any changes to their course registration (including changes to sections of a course) so that the counsellor may recommend accommodations for the correct courses. Students should make a note for themselves to contact their counsellors in December or January regarding any changes to second term courses.
3. Accommodations that (School Name) will provide may differ from accommodations that students request or have used in high school or at other educational institutions. (Support Services') recommendations are based on consideration of a student's experienced difficulties and history using accommodations, information from disability documentation, information concerning course requirements, and our experience with assisting students by arranging various accommodations and related services.
4. Prospective students are encouraged to meet with a (Support Services) counsellor to find out the types of accommodation that we would recommend for them before making their final decision about attending (School Name). To provide this information, we would need documentation concerning the individual's disability.

Documentation Requirements:

The type of documentation that (Support Services) requires depends on the nature of a student's disability and the ways in which it affects academic performance. In general, students who request accommodation are required to provide documentation of their disability from a professional who is qualified to diagnose the condition and to comment on associated difficulties that may arise at university or while engaged in course or program related work.

Documentation must state the nature of the disability and its functional implications for university. It should support accommodations that are being requested, and specify situations or activities that may worsen a student's condition. Documentation that includes suggestions for accommodation is appreciated.

Specific information about documentation requirements is presented below each of the following disability categories.

Appendix B: University #2 Guidelines for Accommodation (DSO) (CON'T)

Learning Disabilities:

Students with learning disabilities must provide a current psycho-educational assessment report completed by a registered psychologist or psychological associate. Generally, a current assessment would be no more than three years old. Documentation that is older than three years will be evaluated on an individual basis. For example, older reports based on comprehensive assessments that individuals underwent at 18 years of age or older may provide a sufficiently informative basis for arranging accommodation.

Students who have not undergone a recent and thorough psycho-educational assessment may receive assistance arranging one from their (Support Services) counsellor.

It may be possible for (Support Services) to recommend academic accommodation on a temporary basis while a student undergoes an assessment. An Individual Education Plan (IEP) and confirmation that a student used accommodation during high school may serve as a basis for temporary accommodations in a student's first year at (School Name).

Attention Deficit/Hyperactivity Disorder (ADHD):

Documentation of ADHD may be provided by a registered psychologist or psychological associate, psychiatrist or relevantly trained physician. A current and comprehensive psycho-educational assessment report typically is the most informative documentation for supporting academic accommodation and learning skills development. Alternatively, documentation of ADHD may be provided (online).

Documentation of ADHD must include:

- a current diagnosis of adult ADHD
- description of functional implications of the individual's ADHD and evidence that the disorder is disabling in a university setting
- information about co-existing conditions that also may affect academic performance, such as anxiety, depression, specific learning disabilities and addictions.

Mental Health/Psychiatric Disorders:

Documentation of mental health or psychiatric disabilities must be prepared by a registered psychologist or psychological associate, psychiatrist, or relevantly trained physician. Documentation must describe symptoms and difficulties that a student currently is experiencing. The documentation should include a description of the degree of impairment and the rationale for any accommodations that are suggested. A description of current treatment, such as medication or psychotherapy, and their implications for accommodation also should be provided.

Please note that documentation of test anxiety in and of itself is insufficient to arrange academic accommodation.

Appendix B: University #2 Guidelines for Accommodation (DSO) (CON'T)

Sensory, Physical, and Medical Disabilities:

Documentation of hearing, vision, mobility and medical disabilities should be completed by the treating physician or a physician who is most familiar with a student's disability. Students are asked to have physicians complete the (Support Services) Documentation of Physical Disability Form. Alternatively, letters or reports may be acceptable.

Documentation should include a diagnostic statement, a summary of presenting symptoms, a description of how the student's illness or disability may affect them in an academic setting, the expected progress or stability of the condition, and situations that may worsen the condition.

Documentation from other health practitioners such as physiotherapists, occupational therapists and chiropractors often is useful in determining the most appropriate accommodations and services for a student. This documentation must be accompanied by diagnostic information from a physician or medical team representative.

First Year Students:

In addition to documentation specified above, first year student should provide a statement prepared by their school board regarding the accommodations that were used in high school and the rationale for these arrangements. This information may be in the IPRC or IEP documents or in letters that have been prepared by school officials.

Visiting Students:

Visiting students from other universities typically are required to provide documentation of their disability as described above. In some cases, (Support Services) may accept a statement prepared by a student's home institution that indicates accommodations that were available and the rationale for these arrangements. Visiting students should consult with a (Support Services) counselor regarding documentation.

Alternative Format Text:

Alternative format text (e.g., electronic or Braille versions of print material) is available to students who are blind, have low vision, or who have a learning or mobility disability. Alternative format texts are requested on-line at the link below. Please note that information such as: book title, author, and professor name, will be needed in order to complete your request.

It can take several weeks to obtain digital textbooks and several months to have a Braille textbook made. Therefore, students who need alternative format textbooks are required to provide a reading list to (Support Services) immediately after they have selected their courses. Students may obtain textbook information from the university bookstore. The bookstore usually has course reading lists at least a month before classes begin.

In some instances, (Support Services) may be able to create accessible versions of textbooks more quickly than obtaining them from another source. In these cases, (Support Services) would ask students to supply their textbooks when requesting alternative format texts so that (Support Services) can scan them.

Appendix B: University #2 Guidelines for Accommodation (DSO) (CON'T)

Accessible Campus Transportation:

Students may use (Transportation Services) for purposes related to their program of study and other University business. For example, students may use (Transportation Services) to travel between classes, to meet with their instructors (or teaching assistants, Financial Aid advisors, etc.), to go to the library or book store, or to get lunch between classes. In the event of multiple requests for rides at a particular time, priority will be given to students who are travelling to exams and classes.

Students who require the use of (Transportation Services) for disability-related reasons must contact a (Support Services) counsellor and provide documentation of their disability.

Interpreter and Note-Taker Service:

Undergraduate and graduate students who require sign-language interpreters and/or note-taking assistance in a classroom environment may arrange these services in an appointment with a (Support Services) counsellor.

Learning Strategy Instruction:

Learning Strategy Instruction is available to undergraduate and graduate students with learning disabilities and attention disorders.

Students may work with a learning strategist to:

- learn to use their psychoeducational assessment report to understand their unique pattern of cognitive strengths and weaknesses
- develop various skills to facilitate reading, studying, learning new information, note-taking, essay writing, and exam writing
- learn to monitor their progress, reflect on the effectiveness of their plans, and make changes as necessary
- work towards a better understanding of their capabilities in different environments, and thereby strengthen their ability to self-advocate at University and in the workplace.

Students who would like to work with the learning strategist should inform their (Support Services) counsellor or the receptionist. Students may be asked to provide more information by filling out a questionnaire prior to their appointment

Assistive Technology Services:

(Support Services) maintains two assistive technology facilities for undergraduate and graduate students' use. Students who would like to use these facilities should ask their (Support Services) counsellor to refer them to the assistive technologist.

Appendix C: Email Script for Recruitment, Students

Subject Line: Invitation to participate in research

My name is Sarah Copfer Terreberry and I am a Ph.D. Candidate in the Faculty of Education at Western University, working under the supervision of Dr. Jacqueline Specht, Associate Professor, Faculty of Education. You are being invited to participate in a study that we are currently conducting on student and faculty perceptions of faculty preparedness to teach students with learning disabilities (LD) at the post-secondary level because you are a student with a learning disability that is registered with the Student Development Centre.

Briefly, the study involves completing an online survey detailing your beliefs, attitudes, opinions, and behaviours around faculty preparedness to teach students with LD and your personal learning experiences in higher education. It is estimated that survey completion will take approximately 20 minutes in one session.

The study also involves an **optional** interview component. After completion of the online survey, you will be asked if you would like to participate in a follow-up interview. Participation in the interview component is entirely voluntary and separate from the survey component; involvement in the initial survey component does not mandate involvement in the follow-up interview component. It is estimated that the interview will take approximately 30-60 minutes in one session. Interviews will be arranged at a time and location convenient to you.

Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your future academic status or employment. All data collected will remain confidential.

If you would like to participate in this study please click on the link below to access the letter of information and survey link. If the link does not open automatically, please copy and paste into your browser. https://uwo.eu.qualtrics.com/SE/?SID=SV_7agqqQxeE3aqKpf

Thank you,

Sarah Copfer Terreberry, Ph.D. Candidate
Faculty of Education, Western University

Dr. Jacqueline Specht, Ph.D., Associate Professor
Faculty of Education, Western University

Appendix D: Letter of Information and Informed Consent, Students



Appendix B: Letter of Information and Informed Consent, Students

Project Title:

Understanding student and faculty perceptions of the accommodation and support procedures for students with learning disabilities in Ontario universities: A mixed methods approach

Principal Investigator:

Dr. Jacqueline Specht, Associate Professor, Western University, London, ON

Letter of Information

Invitation to Participate

My name is Sarah Copfer Terreberry and I am a Ph.D. Candidate in the Faculty of Education at Western University, working under the supervision of Dr. Jacqueline Specht. You are being invited to participate in this research study examining student and faculty perceptions of faculty preparedness to teach students with learning disabilities (LD) at the post-secondary level because you are a student with a learning disability that is registered with the Student Development Centre.

Purpose of the Letter

The purpose of this letter is to provide you with information required for you to make an informed decision regarding participation in this research.

Purpose of this Study

The purpose of this study is to understand the learning needs of students with learning disabilities in higher education settings, highlighting both students' and faculty members' perspectives of faculty preparedness to teach students with LD and the effectiveness of various practices and policies that are currently in place to support students' overall inclusion into the higher education environment. Findings from this study will be used to 1) identify the specific challenges students with LD face in obtaining accommodation and support for their learning needs at the classroom level, and 2) identify the specific challenges faculty may face providing accommodations and support to students with LD at the classroom level, in order to develop more appropriate educational policy, practice, and support services for students with LD in post-secondary settings.

Inclusion Criteria

Students in university who are registered with the Student Development Centre and who have been identified as having a learning disability (either on its own or in conjunction with another disability/disorder) are eligible to participate in this study.

Western University, Faculty of Education

1137 Western Road • London, Ontario • CANADA - N6G 1G7 • www.westernu.ca

Appendix D: Letter of Information and Informed Consent, Students CON'T

Study Procedures

If you agree to participate, you will be asked to complete an online survey detailing your beliefs, attitudes, opinions, and behaviours around faculty preparedness to teach students with LD and your personal learning experiences in higher education. It is estimated that survey completion will take approximately 20 minutes in one session. The task will be conducted online using Qualtrics, a secure survey platform used by Western University. After completion of the online survey, you will then be asked if you would like to participate in a follow-up interview. Participation in the interview component is entirely voluntary and separate from the survey component; involvement in the initial survey component does not mandate involvement in the follow-up interview component. If you elect to participate in the interview, you will be asked to leave your contact information in a separate section (not linked to the survey data) in the survey platform. Survey data will be separate from personal information and will therefore remain anonymous. The researcher may then contact you to set up an interview time and location convenient to you. Students who elect to be involved in the interview component will be asked to answer semi-structured interview questions highlighting personal stories and experiences with accommodation and support procedures in university. Interviews may be recorded using audio recording procedures; participants who do not wish to have their interview audio recorded can still participate in the interviews without any effect. It is estimated that the interview will take approximately 30-60 minutes in one session.

Possible Risks and Harms

The possible risks and harms to you include potential unease/discomfort in discussion of your experiences as a student with LD in university.

Possible Benefits

You may not directly benefit from participating in this study but information gathered may provide benefits to society that may include a better understanding of the experiences of individuals with LD in educational and social contexts and more effective support systems for individuals with LD at different levels within these.

Compensation

You will not be compensated for your participation in this research. However, as an incentive to participate in this study you will have the opportunity at the completion of the survey to enter your name to win a draw for a \$25 gift certificate to your university's campus bookstore. Personal information will not be linked to the survey data and survey data will therefore remain anonymous if you choose to enter the draw.

Western University, Faculty of Education
1137 Western Road • London, Ontario • CANADA - N6G 1G7 • www.westernu.ca

Appendix D: Letter of Information and Informed Consent, Students CON'T

Voluntary Participation

Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your future academic status or employment.

Confidentiality

All data collected will remain confidential and accessible only to the investigators of this study. Personal information in this study will only be collected if you offer this information to the researcher on the initial survey. Survey data will not be linked to personal information and will therefore be kept anonymous. The Qualtrics survey platform ensures secure transmission of data through the enablement of the TLS (transport layer security) encryption feature, and the masking of participant IP addresses from the survey author. Anonymity is thus guaranteed through these features. Data will be stored in a locked digital file, which will only be accessible to the researcher.

For those that provide personal information on the surveys and participate in the interview component of the study, the researcher will maintain confidentiality through non-disclosure of identifying information (i.e. real names, locations, personal details). Pseudonyms will be used to protect confidentiality in the final research product. Interviews will take place in a private location that is accessible to you. Data collected from this phase including tape recordings, interview notes, and observations will be stored in a locked filing cabinet, which will only be accessible to the researcher. If the results are published, your name will not be used. If you choose to withdraw from this study, your data will be removed and destroyed from our database. All data will be kept by the researcher and stored securely for a minimum of five years. Data will be destroyed when no longer needed.

Contacts for Further Information

If you require any further information regarding this research project or your participation in the study you may contact Sarah Copfer Terreberry, Student Investigator, by email at [REDACTED] or Dr. Jacqueline Specht, Principal Investigator, by telephone at [REDACTED] or email to [REDACTED]

Representatives of Western University's Non-Medical Research Ethics Board may contact you or require access to your study-related records to monitor the conduct of the research.

If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Research Ethics [REDACTED]

Appendix D: Letter of Information and Informed Consent, Students CON'T**Publication**

If the results of the study are published, your name will not be used. If you would like to receive a copy of any potential study results, please provide your name and contact information in the designated area after completion of the survey.

Consent

Completion of the survey is indication of your consent to participate.

This letter is yours to keep for future reference.

Appendix D: Letter of Information and Informed Consent, Students CON'T

Consent Form (Interview)

Project Title: Understanding student and faculty perceptions of the accommodation and support procedures for students with learning disabilities in Ontario universities: A mixed methods approach

Study Investigator's Name: Dr. Jacqueline Specht

Co-Investigator's Name: Sarah Copfer Terreberry

I have read the Letter of Information, have had the nature of the study explained to me and I agree to participate in the interview. All questions have been answered to my satisfaction. I understand that I do not waive my legal rights by signing the Consent Form.

I consent to being audio recorded during the interview

Participant's Name (please print):

Participant's Signature:

Date:

Person Obtaining Informed Consent (please print):

Signature:

Date:

Western University, Faculty of Education
1137 Western Road • London, Ontario • CANADA - N6G 1G7 • www.westernu.ca

Appendix E: Reminder Email Script for Recruitment, Students

Subject Line: REMINDER- Invitation to participate in research

My name is Sarah Copfer Terreberry and I am a Ph.D. Candidate in the Faculty of Education at Western University, working under the supervision of Dr. Jacqueline Specht, Associate Professor, Faculty of Education. You were recently invited to participate in a study that we are currently conducting on student and faculty perceptions of faculty preparedness to teach students with learning disabilities (LD) at the post-secondary level because you are a student with a learning disability that is registered with the Student Development Centre. **This email serves as a reminder to please consider participating in this study.**

Briefly, the study involves completing an online survey detailing your beliefs, attitudes, opinions, and behaviours around faculty preparedness to teach students with LD and your personal learning experiences in higher education. It is estimated that survey completion will take approximately 20 minutes in one session.

The study also involves an **optional** interview component. After completion of the online survey, you will be asked if you would like to participate in a follow-up interview. Participation in the interview component is entirely voluntary and separate from the survey component; involvement in the initial survey component does not mandate involvement in the follow-up interview component. It is estimated that the interview will take approximately 30-60 minutes in one session. Interviews will be arranged at a time and location convenient to you.

Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your future academic status or employment. All data collected will remain confidential.

If you would like to participate in this study please click on the link below to access the letter of information and survey link. If the link does not open automatically, please copy and paste into your browser.

https://uwo.eu.qualtrics.com/SE/?SID=SV_7agqqQxeE3aqKpf

Thank you,

Sarah Copfer Terreberry, Ph.D. Candidate
Faculty of Education, Western University

Dr. Jacqueline Specht, Ph.D., Associate Professor
Faculty of Education, Western University

Appendix F: Student Perceptions of Faculty Preparedness Questionnaire (SPFPQ)

Please complete the following demographic information.

Gender:

- Male Female

Year of Program:

- 1st Year 5th Year
 2nd Year Graduate Student
 3rd Year Other. Please Specify:
 4th Year _____

Faculty/Department:

- | | |
|----------------------------------------------------|----------------------------------------------------------|
| <input type="checkbox"/> Arts and Humanities | <input type="checkbox"/> Information and Media Studies |
| <input type="checkbox"/> Business | <input type="checkbox"/> Law |
| <input type="checkbox"/> Education | <input type="checkbox"/> Medicine and Dentistry |
| <input type="checkbox"/> Engineering | <input type="checkbox"/> Music |
| <input type="checkbox"/> Graduate and Postdoctoral | <input type="checkbox"/> Science |
| <input type="checkbox"/> Health Sciences | <input type="checkbox"/> Social Science |
| | <input type="checkbox"/> Other. Please Specify:
_____ |

What type of learning disability have you been diagnosed with? Please check all boxes that apply.

- Dyslexia (problems associated with reading)
 Dysgraphia (problems associated with writing)
 Dyscalculia (problems associated with mathematics)

Do you have other disabilities/disorders/issues that coexist with your learning disability?

- Yes No

If "Yes", please specify:

- Attention Deficit Disorder (ADD)
 Attention Deficit Hyperactivity Disorder (ADHD)
 Giftedness
 Auditory Processing Disorders
 Autism Spectrum Disorders
 Visual Processing Disorders
 Dispraxia (problems associated with motor skill development)
 Executive functioning problems (i.e. planning, organizing, strategizing, managing time, etc.)
 Other. Please specify:

What is your understanding/definition of a learning disability? Please share your response below.

Appendix F: Student Perceptions of Faculty Preparedness Questionnaire (SPFPQ) CON'T

Please rate each of the following statements according to this 6 point scale:

- 6= strongly agree
- 5= agree
- 4= agree somewhat
- 3= disagree somewhat
- 2= disagree
- 1= Strongly disagree

STUDENT PERCEPTIONS OF FACULTY PREPAREDNESS QUESTIONNAIRE (SPFPQ)	Strongly disagree	Disagree	Disagree Somewhat	Agree Somewhat	Agree	Strongly agree
1. I believe that my instructors understand the term "learning disability"	1	2	3	4	5	6
2. My instructors have a strong understanding of the needs of students with learning disabilities	1	2	3	4	5	6
3. I feel that my instructors understand their legal responsibility as an instructor to provide accommodations for a student with a learning disability	1	2	3	4	5	6
4. My instructors include a statement on their course syllabus that encourages students to meet with them to discuss my accommodation and learning needs	1	2	3	4	5	6
5. My instructors make a verbal statement on the first day of class inviting students with disabilities to meet with them to discuss their learning needs	1	2	3	4	5	6
6. I feel that my instructors have adequate knowledge about students with learning disabilities and/or how to teach them	1	2	3	4	5	6
7. I feel that my instructors are aware of assistive technology that students with learning disabilities can use to improve their performance in my course.	1	2	3	4	5	6
8. Tests and other assessments that I administer in my courses are created with the diverse learning needs of students in mind	1	2	3	4	5	6
9. I feel that if my instructors have a question about a student with a learning disability or their accommodation plan they would go to the Student Services Office to seek support	1	2	3	4	5	6
10. I believe that my instructors feel that providing classroom and testing accommodations to students with learning disabilities is unfair to students without learning disabilities (R)	1	2	3	4	5	6

Appendix F: Student Perceptions of Faculty Preparedness Questionnaire (SPFPQ) CON'T

STUDENT PERCEPTIONS OF FACULTY PREPAREDNESS QUESTIONNAIRE (SPFPQ)	Strongly disagree	Disagree	Disagree Somewhat	Agree Somewhat	Agree	Strongly agree
11. I believe that my instructors feel that accommodations for students with learning disabilities compromise the integrity of the curriculum (R)	1	2	3	4	5	6
12. I believe that my instructors feel that students with learning disabilities can be successful at the university level	1	2	3	4	5	6
13. I believe that my instructors feel that although students with learning disabilities may be able to do the school work using their accommodations, they are concerned that students with learning disabilities will have trouble in the real work place (R)	1	2	3	4	5	6
14. I believe that my instructors might question whether students with learning disabilities truly have a LD (R)	1	2	3	4	5	6
15. I believe that my instructors feel that professionals with learning disabilities may be as effective as professionals without LD in the same job/ occupation	1	2	3	4	5	6
16. I believe that my instructors feel that students with a learning disability use it as an excuse when they are not doing well in my class (R)	1	2	3	4	5	6
17. I believe that my instructors feel that having students with learning disabilities in the classroom reduces the quality of the education that other students receive (R)	1	2	3	4	5	6
18. I believe that my instructors feel that making adequate <i>teaching</i> accommodations for students with verified learning disabilities is unrealistic and should not be part of their job (R) (N)	1	2	3	4	5	6
19. I believe that my instructors feel that making adequate <i>testing</i> accommodations for students with verified learning disabilities is unrealistic and should not be part of their job (R) (N)	1	2	3	4	5	6

Notes:

- (R)= Items that were reverse-coded
- (N)= Items that are new (e.g. added to the original survey)

Appendix G: Ethics Approval, Western University



**Western
Research**

Research Ethics

Western University Health Science Research Ethics Board NMREB Delegated Initial Approval Notice

Principal Investigator: Dr. Jacqueline Specht
Department & Institution: Education\Faculty of Education, Western University

NMREB File Number: 106072
Study Title: Understanding student and faculty perceptions of the accommodation and support procedures for students with learning disabilities in Ontario universities: A mixed methods approach
Sponsor:

NMREB Initial Approval Date: January 29, 2015
NMREB Expiry Date: January 29, 2016

Documents Approved and/or Received for Information:

Document Name	Comments	Version Date
Western University Protocol	Revised Western Protocol- PDF	2014/12/16
Recruitment Items	Reminder Recruitment Email, Faculty PDF	2014/12/16
Recruitment Items	Reminder Recruitment Email, Students PDF	2014/12/16
Letter of Information & Consent	Faculty	2015/01/23
Letter of Information & Consent	Student	2015/01/23
Instruments	Revised Survey, Students, Appendix A PDF (received Dec.18/14)	
Instruments	APPENDIX B, Faculty Survey, FPQ (NEW) (received Nov.18/14)	
Instruments	APPENDIX C, Interview Schedule, Students (NEW) (received Nov.18/14)	
Instruments	APPENDIX D, Faculty Interview Schedule (NEW) (received Nov.18/14)	

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the above named study, as of the NMREB Initial Approval Date noted above.

NMREB approval for this study remains valid until the NMREB Expiry Date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario.

Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB.

The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.



Ethics Officer to Contact for Further Information



This is an official document. Please retain the original in your files.

Western University, Research, Support Services Bldg., Rm. 5150
London, ON, Canada N6A 3K7 t. 519.661.3036 f. 519.850.2466 www.uwo.ca/research/services/ethics

Appendix H: Email Script for Recruitment, Faculty

Subject Line: Invitation to participate in research

My name is Sarah Copfer Terreberry and I am a Ph.D. Candidate in the Faculty of Education at Western University, working under the supervision of Dr. Jacqueline Specht, Professor, Faculty of Education. You are being invited to participate in a study that we are currently conducting on student and faculty perceptions of faculty preparedness to teach students with learning disabilities (LD) at the post-secondary level because you are a faculty member at the university.

Briefly, the study involves completing an online survey detailing your beliefs, attitudes, opinions, and behaviours around your perceptions of preparedness to teach students with LD and your personal teaching experiences in higher education. It is estimated that survey completion will take approximately 20 minutes in one session.

The study also involves an **optional** interview component. After completion of the online survey, you will be asked if you would like to participate in a follow-up interview. Participation in the interview component is entirely voluntary and separate from the survey component; involvement in the initial survey component does not mandate involvement in the follow-up interview component. It is estimated that the interview will take approximately 30-60 minutes in one session. Interviews will be arranged at a time and location convenient to you.

Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your future academic status or employment. All data collected will remain confidential.

If you would like to participate in this study please click on the link below to access the letter of information and survey link. If the link does not open automatically, please copy and paste into your browser.

https://uwo.eu.qualtrics.com/SE/?SID=SV_0pjut0cjinCG855r

Thank you,

Sarah Copfer Terreberry, Ph.D. Candidate
Faculty of Education, Western University

Dr. Jacqueline Specht, Ph.D., Associate Professor
Faculty of Education, Western University

Appendix I: Letter of Information and Informed Consent, Faculty



Letter of Information and Informed Consent, Faculty

Project Title:

Understanding student and faculty perceptions of the accommodation and support procedures for students with learning disabilities in Ontario universities: A mixed methods approach

Principal Investigator:

Dr. Jacqueline Specht, Associate Professor, Western University, London, ON

Letter of Information

Invitation to Participate

My name is Sarah Copfer Terreberry and I am a Ph.D. Candidate in the Faculty of Education at Western University, working under the supervision of Dr. Jacqueline Specht. You are being invited to participate in this research study examining student and faculty perceptions of faculty preparedness to teach students with learning disabilities (LD) at the post-secondary level because you are a faculty member at the university.

Purpose of the Letter

The purpose of this letter is to provide you with information required for you to make an informed decision regarding participation in this research.

Purpose of this Study

The purpose of this study is to understand the learning needs of students with learning disabilities in higher education settings, highlighting both students' and faculty members' perspectives of faculty preparedness to teach students with LD and the effectiveness of various practices and policies that are currently in place to support students' overall inclusion into the higher education environment. Findings from this study will be used to 1) identify the specific challenges students with LD face in obtaining accommodation and support for their learning needs at the classroom level, and 2) identify the specific challenges faculty may face providing accommodations and support to students with LD at the classroom level, in order to develop more appropriate educational policy, practice, and support services for students with LD in post-secondary settings.

Inclusion Criteria

Faculty members across all disciplines and departments are eligible to participate in this study.

Study Procedures

If you agree to participate, you will be asked to complete an online survey detailing your beliefs, attitudes, opinions, and behaviours around your perceptions of preparedness to teach

Western University, Faculty of Education
1137 Western Road • London, Ontario • CANADA - N6G 1G7 • www.westernu.ca

Appendix I: Letter of Information and Informed Consent, Faculty CON'T

students with LD and your personal teaching experiences in higher education. It is estimated that survey completion will take approximately 20 minutes in one session. The task will be conducted online using Qualtrics, a secure survey platform used by Western University. After completion of the online survey, you will then be asked if you would like to participate in a follow-up interview. Participation in the interview component is entirely voluntary and separate from the survey component; involvement in the initial survey component does not mandate involvement in the follow-up interview component. If you elect to participate in the interview, you will be asked to leave your contact information in a separate section (not linked to the survey data) in the survey platform. Survey data will be separate from personal information and will therefore remain anonymous. The researcher may then contact you to set up an interview time and location convenient to you. Faculty who elect to be involved in the interview component will be asked to answer semi-structured interview questions highlighting personal stories and experiences of teaching students with LD in university and of implementing accommodation and support procedures for these students. Interviews may be recorded using audio recording procedures; participants who do not wish to have their interview audio recorded can still participate in the interviews without any effect. It is estimated that the interview will take approximately 30-60 minutes in one session.

Possible Risks and Harms

The possible risks and harms to you include potential unease/discomfort in discussion of your experiences teaching students with LD.

Possible Benefits

You may not directly benefit from participating in this study but information gathered may provide benefits to society that may include a better understanding of the experiences of individuals with LD in educational and social contexts and more effective support systems for individuals with LD at different levels within these.

Compensation

You will not be compensated for your participation in this research. However, as an incentive to participate in this study you will have the opportunity at the completion of the survey to enter your name to win a draw for a \$25 gift certificate to your university's campus bookstore. Personal information will not be linked to the survey data and survey data will therefore remain anonymous if you choose to enter the draw.

Voluntary Participation

Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your future academic status or employment.

Appendix I: Letter of Information and Informed Consent, Faculty CON'T

Confidentiality

All data collected will remain confidential and accessible only to the investigators of this study. Personal information in this study will only be collected if you offer this information to the researcher on the initial survey. Survey data will not be linked to personal information and will therefore be kept anonymous. The Qualtrics survey platform ensures secure transmission of data through the enablement of the TLS (transport layer security) encryption feature, and the masking of participant IP addresses from the survey author. Anonymity is thus guaranteed through these features. Data will be stored in a locked digital file, which will only be accessible to the researcher.

For those that provide personal information on the surveys and participate in the interview component of the study, the researcher will maintain confidentiality through non-disclosure of identifying information (i.e. real names, locations, personal details). Pseudonyms will be used to protect confidentiality in the final research product. Interviews will take place in a private location that is accessible to you. Data collected from this component including tape recordings, interview notes, and observations will be stored in a locked filing cabinet, which will only be accessible to the researcher. If the results are published, your name will not be used. If you choose to withdraw from this study, your data will be removed and destroyed from our database. All data will be kept by the researcher and stored securely for a minimum of five years. Data will be destroyed when no longer needed.

Contacts for Further Information

If you require any further information regarding this research project or your participation in the study you may contact Sarah Copfer Terreberry, Student Investigator, by email at [REDACTED] or Dr. Jacqueline Specht, Principal Investigator, by telephone at [REDACTED] or email to [REDACTED].

Representatives of Western University's Non-Medical Research Ethics Board may contact you or require access to your study-related records to monitor the conduct of the research.

If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Research Ethics [REDACTED].

Publication

If the results of the study are published, your name will not be used. If you would like to receive a copy of any potential study results, please provide your name and contact information in the designated area after completion of the survey.

Consent

Completion of the survey is indication of your consent to participate.

This letter is yours to keep for future reference.

Appendix I: Letter of Information and Informed Consent, Faculty CON'T

Consent Form (Interview)

Project Title: Understanding student and faculty perceptions of the accommodation and support procedures for students with learning disabilities in Ontario universities: A mixed methods approach

Study Investigator's Name: Dr. Jacqueline Specht

Co-Investigator's Name: Sarah Copfer Terreberry

I have read the Letter of Information, have had the nature of the study explained to me and I agree to participate in the interview. All questions have been answered to my satisfaction. I understand that I do not waive my legal rights by signing the Consent Form.

I consent to being audio recorded during the interview

Participant's Name (please print):

Participant's Signature:

Date:

Person Obtaining Informed Consent (please print):

Signature:

Date:

Appendix J: Reminder Email Script for Recruitment, Faculty

Subject Line: REMINDER- Invitation to participate in research

My name is Sarah Copfer Terreberry and I am a Ph.D. Candidate in the Faculty of Education at Western University, working under the supervision of Dr. Jacqueline Specht, Associate Professor, Faculty of Education. You were recently invited to participate in a study that we are currently conducting on student and faculty perceptions of faculty preparedness to teach students with learning disabilities (LD) at the post-secondary level because you are a faculty member at the university. **This email serves as a reminder to please consider participating in this study.**

Briefly, the study involves completing an online survey detailing your beliefs, attitudes, opinions, and behaviours around your perceptions of preparedness to teach students with LD and your personal teaching experiences in higher education. It is estimated that survey completion will take approximately 20 minutes in one session.

The study also involves an **optional** interview component. After completion of the online survey, you will be asked if you would like to participate in a follow-up interview. Participation in the interview component is entirely voluntary and separate from the survey component; involvement in the initial survey component does not mandate involvement in the follow-up interview component. It is estimated that the interview will take approximately 30-60 minutes in one session. Interviews will be arranged at a time and location convenient to you.

Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your future academic status or employment. All data collected will remain confidential.

If you would like to participate in this study please click on the link below to access the letter of information and survey link. If the link does not open automatically, please copy and paste into your browser.

https://uwo.eu.qualtrics.com/SE/?SID=SV_0pjut0cjinCG855r

Thank you,

Sarah Copfer Terreberry, Ph.D. Candidate
Faculty of Education, Western University

Dr. Jacqueline Specht, Ph.D., Associate Professor
Faculty of Education, Western University

Appendix K: Faculty Preparedness Questionnaire (FPQ)

Faculty Preparedness Questionnaire, adapted (FPQ)

Please complete the following demographic information.

Gender:

- Male Female

Number of Years Teaching at the University Level:

- 0-5 years 20-25 years
 5-10 years 25-30 years
 10-15 years 30-35 years
 15-20 years 35-40 years

Position Type:

- Tenured One-year appointment
 Tenure-track Adjunct
 Full time Other. Please Specify:

Faculty Rank

- Full Professor Assistant Professor
 Associate Professor Instructor
 Other. Please Specify:

Faculty/Department:

- Arts and Humanities Information and Media Studies
 Business Law
 Education Medicine and Dentistry
 Engineering Music
 Graduate and Postdoctoral Science
 Health Sciences Social Science
 Other. Please Specify:

What is your understanding/definition of a learning disability? Please share your response below.

Appendix K: Faculty Preparedness Questionnaire (FPQ) CON'T

Please rate each of the following statements according to this 6 point scale:

- 6= strongly agree
- 5= agree
- 4= agree somewhat
- 3= disagree somewhat
- 2= disagree
- 1= Strongly disagree

FACULTY PREPAREDNESS QUESTIONNAIRE (FPQ)	Strongly disagree	Disagree	Disagree Somewhat	Agree Somewhat	Agree	Strongly agree
1. I understand the term "learning disability"	1	2	3	4	5	6
2. I have a strong understanding of the needs of students with learning disabilities	1	2	3	4	5	6
3. I understand my legal responsibility as an instructor to provide accommodations for a student with a learning disability	1	2	3	4	5	6
4. I include a statement on my course syllabus that encourages students to meet with me to discuss their accommodation and learning needs	1	2	3	4	5	6
5. I make a verbal statement on the first day of class inviting students with disabilities to meet with me to discuss their learning needs	1	2	3	4	5	6
6. I have attended specialized training to acquire knowledge about students with learning disabilities and/or how to teach them	1	2	3	4	5	6
7. I am aware of assistive technology that students with learning disabilities can use to improve their performance in my course	1	2	3	4	5	6
8. Tests and other assessments that I administer in my courses are created with the diverse learning needs of students in mind	1	2	3	4	5	6
9. If I have a question about a student with a learning disability or their accommodation plan I would go to the Student Services Office to seek support	1	2	3	4	5	6
10. Providing classroom and testing accommodations to students with learning disabilities is unfair to students without learning disabilities (R)	1	2	3	4	5	6
11. Accommodations for students with learning disabilities compromise the integrity of the curriculum (R)	1	2	3	4	5	6

Appendix K: Faculty Preparedness Questionnaire (FPQ) CON'T

FACULTY PREPAREDNESS QUESTIONNAIRE (FPQ)	Strongly disagree	Disagree	Disagree Somewhat	Agree Somewhat	Agree	Strongly agree
12. I believe students with learning disabilities can be successful at the university level	1	2	3	4	5	6
13. Students with learning disabilities may be able to do the school work using their accommodations but I am concerned that they will they will have trouble in the real work place (R)	1	2	3	4	5	6
14. I find students with learning disabilities wait until they are not doing well in class to come and talk to me and then I question whether they truly have a LD (R)	1	2	3	4	5	6
15. Professionals with learning disabilities may be as effective as professionals without LD in the same job/ occupation	1	2	3	4	5	6
16. Students with a learning disability use it as an excuse when they are not doing well in my class (R)	1	2	3	4	5	6
17. Having students with learning disabilities in the classroom reduces the quality of the education that other students receive (R)	1	2	3	4	5	6
18. Making adequate <i>teaching</i> accommodations for students with verified learning disabilities in my courses is unrealistic given time constraints and other job demands (R) (N)	1	2	3	4	5	6
19. Making adequate <i>testing</i> accommodations for students with verified learning disabilities in my courses is unrealistic given time constraints and other job demands (R) (N)	1	2	3	4	5	6
20. I receive adequate support from the Disability Services Office in working with students who have learning disabilities (N)	1	2	3	4	5	6
21. I receive adequate support from the administrators of the university in working with students who have learning disabilities (N)	1	2	3	4	5	6
22. I receive adequate support from my department in working with students who have learning disabilities (N)	1	2	3	4	5	6
23. The university provides professional development opportunities to me to further my knowledge in supporting students with learning disabilities (N) (D)	1	2	3	4	5	6
24. I believe that the accommodation and support procedure employed at my institution is beneficial to students with learning disabilities (N)	1	2	3	4	5	6

Appendix K: Faculty Preparedness Questionnaire (FPQ) CON'T

FACULTY PREPAREDNESS QUESTIONNAIRE (FPQ)	Strongly disagree	Disagree	Disagree Somewhat	Agree Somewhat	Agree	Strongly agree
25. I support the policies and procedures that are in place to assist students with learning disabilities at my institution (N)	1	2	3	4	5	6

Notes:

- **(R)**= Items that were reverse-coded
- **(N)**= Items that are new (e.g. added to the original survey)
- **(D)**= Items that were deleted/removed from scale for reliability

Appendix L: Interview Schedule, Students

1. What is your understanding/definition of a learning disability?
2. What specific learning challenges have you faced in the university environment?
3. What barriers or obstacles have you experienced in this environment?
4. Who would you say are your most significant supports in this environment?
5. What have your experiences been with your instructors/professors as a person with LD? Do you seek support from all of your instructors/professors?
6. What challenges have you faced in requesting accommodations or support from instructors/professors? What successes have you had?
7. Do you feel your instructors/teachers are adequately prepared to support your learning needs? Why/why not?
8. How have the experiences you've had with instructors/professors impacted on your learning process in the university environment? How have these impacted on your student experience overall?
9. How have your experiences with the Support Services Office impacted on your learning process in the university environment? How have the accommodations and supports recommended impacted on this? How has your experience with the Support Services Office impacted on your student experience overall?
10. How have the experiences with your peers impacted on your learning process in the university environment? How have these experiences impacted on your student experience overall?
11. What strategies have you developed to help you succeed in the university environment?
12. How do you find your campus environment, overall? Do you feel like your university is adequately supporting your academic and social needs? Do you feel like you fit in here?
13. Is there anything else you'd like to tell me about your experience that could help me in understanding the needs and challenges of students with learning disabilities in post-secondary environments?

Appendix M: Email Script for Interview Recruitment, Students

Subject Line: Invitation to participate in research

My name is Sarah Copfer Terreberry and I am a Ph.D. Candidate in the Faculty of Education at Western University, working under the supervision of Dr. Jacqueline Specht, Associate Professor, Faculty of Education.

You recently participated in a survey for a study that we are currently conducting on student and faculty perceptions of faculty preparedness to teach students with learning disabilities (LD) at the post-secondary level, and indicated interest in participating in a follow-up interview for this.

We would now like to invite you to participate in an interview about your experiences in higher education on this topic. It is estimated that the interview will take approximately 30-60 minutes in one session. Interviews will be arranged at a time and location convenient to you. **For participating, your name will again be entered into a draw for a \$25 gift card to your university's campus bookstore.**

Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your future academic status or employment. All data collected will remain confidential.

If you would like to participate in this study please respond directly to this email with your availability. I do understand that you are likely on summer holiday, and would be happy to conduct the interview over Skype if that is an option for you.

I look forward to hearing from you,

Thank you,

Sarah Copfer Terreberry, Ph.D. Candidate
Faculty of Education, Western University

Dr. Jacqueline Specht, Ph.D., Associate Professor
Faculty of Education, Western University

Appendix N: Interview Schedule, Faculty

1. What is your understanding/definition of a learning disability?
2. How do you support students with LD in your classroom?
3. How have you been prepared to teach students with LD in your classroom?
4. How comfortable/prepared do you feel in supporting students with LD in your classroom?
5. What challenges do you face in supporting students with LD in your classroom?
6. Do you feel that there is adequate support for you in facing these challenges at your university?
7. What systems of support do you have at the university level to help you with these challenges? Have you made use of any of these?
8. How has the inclusion of students with LD impacted on your teaching practices?

Appendix O: Email Script for Interview Recruitment, Faculty

Subject Line: Invitation to participate in research

My name is Sarah Copfer Terreberry and I am a Ph.D. Candidate in the Faculty of Education at Western University, working under the supervision of Dr. Jacqueline Specht, Associate Professor, Faculty of Education.

You recently participated in a survey for a study that we are currently conducting on student and faculty perceptions of faculty preparedness to teach students with learning disabilities (LD) at the post-secondary level, and indicated interest in participating in a follow-up interview for this.

We would now like to invite you to participate in an interview about your experiences in higher education on this topic. It is estimated that the interview will take approximately 30-60 minutes in one session. Interviews will be arranged at a time and location convenient to you. **For participating, your name will again be entered into a draw for a \$25 gift card to your university's campus bookstore.**

Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your future academic status or employment. All data collected will remain confidential.

If you would like to participate in this study please respond directly to this email with your availability. I do understand that you are likely on summer holiday, and would be happy to conduct the interview over Skype if that is an option for you.

I look forward to hearing from you,

Thank you,

Sarah Copfer Terreberry, Ph.D. Candidate
Faculty of Education, Western University

Dr. Jacqueline Specht, Ph.D., Associate Professor
Faculty of Education, Western University

Curriculum Vitae

Sarah Copfer Terreberry
PhD Candidate, Educational/Applied Psychology
Western University, London, ON

EDUCATION

- 2011-Present** **Doctor of Philosophy- Educational Psychology/Special Education**
Western University, London, Ontario
Thesis Supervisor: Dr. Jacqueline Specht
Thesis Title: *Understanding student and faculty perceptions of the accommodation and support procedures for students with learning disabilities in Ontario universities: A mixed methods approach*
Expected completion: Summer 2017
- 2009-2010** **Master of Education -Teaching, Learning, and Development**
Brock University, St. Catharines, Ontario
Thesis Supervisor: Dr. Michael Kompf
Thesis Title: *Assessing the Current Curriculum: Are Secondary School Students Prepared for University Education?*
- 2003-2008** **Bachelor of Education- Intermediate/Senior**
McGill University, Montreal, Quebec
Teaching Qualifications: English/Language Arts, Social Sciences (Geography), Special Education (Part I)

PROFESSIONAL QUALIFICATIONS

- 2008-Present** Ontario Certified Teacher (OCT), Ontario College of Teachers

TEACHING EXPERIENCE

- 2014- present** **Instructor, Brock University**
Department of Teacher Education
Courses:
- **EDBE 8Y01: Assessment, Evaluation, and Reporting Primary/Junior/Intermediate**
 - Course focus: Assessment and evaluation
 - **EDUC 8P17: Classroom Dynamics for Concurrent Students (Primary/Junior)** (2015-2017)
 - **EDUC 8P18: Classroom Dynamics for Concurrent Students (Junior/Intermediate)** (2015-2016)
 - **EDUC 8P19: Classroom Dynamics for Concurrent Students (Intermediate/Senior)** (2014-2015)
 - Course focus: Principles of teaching, learning, classroom management and assessment.
 - **EDUC 8P06: Classroom Dynamics: Teaching and Learning (Intermediate/Senior)** (2014-2015)
 - Course focus: Principles and theories of educational psychology and adolescent learning.
- Duties/ Tasks:
- Developed course materials, assignments, and assessments to suit the needs of students; facilitated and integrated course lectures with relevant and authentic learning activities; provided group learning support and individual instruction to students within and outside of class structure; marking/grading of assignments.

- 2015-2016**
- Instructor, Trent University**
School of Professional Learning and Education
 Course:
- **EDUC 4223H: Supporting Literacy and Learners for Students with Special Needs**
 - Course focus: Literacy development and specialized support for struggling learners and students with special needs.
- Duties/ Tasks:
- Developed course materials, assignments, and assessments to suit the needs of students; facilitated and integrated course lectures with relevant and authentic learning activities; provided group learning support and individual instruction to students within and outside of class structure; marking/grading of assignments.
- 2013-2014**
- Teaching Assistant, Western University**
 Faculty of Education, Master of Professional Education Program
 Courses:
- **ED 9660A: Basic Behaviour Principles (Applied Behaviour Analysis)** (Winter, 2014)
 - **ED 9660B: Laboratory of Practice (Applied Behaviour Analysis)** (Fall, 2013)
- Duties/Tasks
- Online course in the MPed (Master of Professional Education) program. Course coordinator duties; online and technical set-up of course; facilitated online learning modules; marked and graded assignments.
- 2009-2014**
- Teaching Assistant, Brock University**
 Department of Graduate and Undergraduate Studies
 Courses:
- **EDUC 4P18: Integrating Curriculum and Assessment: Junior/Intermediate** (Fall, 2014)
 - **EDUC 4P19: Integrating Curriculum and Assessment: Intermediate/Senior** (2014, Winter)
 - **EDUC 4P28: Twenty-First Century Literacies Across the Junior/Intermediate Curriculum** (2014, Winter)
 - **EDUC 4P17: Integrating Curriculum and Assessment: Primary/Junior** (Fall, 2013)
 - **EDUC 4P29: Twenty-First Century Literacies Across the Intermediate/Senior Curriculum** (Fall, 2013)
 - **EDUC 4P18: Integrating Curriculum and Assessment: Junior/Intermediate** (Spring, 2013)
 - **EDUC 3F01: The Process of Teaching** (Full-Year Course, Fall 2012-Spring 2013)
 - **EDUC 4P06: Classroom Assessment: Intermediate/Senior** (Fall, 2012)
 - **EDUC 4P26: Literacy across the Intermediate/Senior Curriculum** (Spring, 2010)
 - **EDUC 3F01, The Process of Teaching** (Full-Year Course, Fall, 2009-Spring, 2013)
- Duties/Tasks:
- Worked with instructors to develop course materials and assignments;

assisted with in-class lectures and helped to facilitate cooperative learning through group activities; facilitated online learning modules and course activities; marked assignments and presentations.

- 2013** **Program Facilitator, Learning Disabilities Association of Niagara Region**
J.A.M. Program
- Implemented literacy programming to children and youth with learning disabilities; supervised, assisted, and supported volunteers assisting children in activities and discussions; conducted Volunteer Performance Evaluations on each volunteer's performance.
- 2012-2013** **Program Facilitator, Learning Disabilities Association of Niagara Region**
C.H.A.M.P.S. Program
- Implemented and delivered academic after-school programming for at-risk children and youth ages 10-14 who require homework assistance and additional academic skill-building; supervised, assisted, and supported volunteers assisting the adolescents in activities and discussions; conducted Volunteer Performance Evaluations on each volunteer's performance throughout program
- 2009-2010** **Tutor, English Language Learning Program, Niagara Christian Community of Schools**
- International Students (Senior Secondary Level)
 - ESL and Language Arts
 - IELTS Preparation
- 2009-2010** **Supply Teacher, Trillium Lakelands District School Board**
- Substitute teaching, various subjects in secondary school settings across Muskoka and Haliburton.
- 2009** **Teacher, GNB English School**
- English as a Second Language in Ilsan, South Korea.
Various ages, Kindergarten to Pre-College

RESEARCH EXPERIENCE

- 2011-2015** **Research Assistant, Western University, Faculty of Education**
Canadian Research Centre on Inclusive Education
- Project Leader: Dr. Jacqueline Specht, Professor, Faculty of Education, and Director, Canadian Research Centre on Inclusive Education, Western University
 - Assisted in nationwide partnership projects/studies, activities, meetings and events; assisted in the annual coordination and implementation of province-wide conference for professionals on Inclusive Education (Coaching to Inclusion); assisted in preparation and coordination of nation-wide partnership grant application (SSHRC) for mobilizing knowledge on inclusive education practices across Canada
 - Transcribed, coded and analyzed quantitative and qualitative data using SPSS programming and ATLAS.ti
- 2010** **Research Assistant, Brock University, Faculty of Education**
- Project Leader: Dr. Debra Harwood, Assistant Professor, Faculty of Graduate and Undergraduate Studies in Education at Brock University
 - Conducted critical reviews of literature; conducted interviews with children of various ages; transcribed, coded, and analyzed data using NVivo programming for research project on children's perceptions of teasing within peer relationships (qualitative)

ACADEMIC AWARDS AND ACHIEVEMENTS

2013-2015 (Annual)	Social Sciences and Humanities Research Council (SSHRC) Doctoral Fellowship, \$20,000 Annual
2013	Jessica Jean Campbell Coulson Research Award, \$1000
2013	Centre for Inclusive Education Research Award, \$750
2011-2015 (Annual)	University of Western Ontario Graduate Fellowship, \$12,500 Annual
2011	Ontario Graduate Scholarship, \$15,000
2009-2010	Brock University Graduate Fellowship, \$6000

PUBLICATIONS, PEER REVIEWED

2015	Harwood, D. & Copfer, S. (2015). "Your lunch pail is silly!" Children's and teachers' views on teasing. <i>Journal of Research in Childhood Education</i> , 29(1), 26-41.
2014	Copfer, S. & Specht, J. (2014). Measuring effective teacher preparation for inclusion. In C. Forlin & T. Loreman (Eds.), <i>Measuring Inclusive Education. International Perspectives on Inclusive Education: Volume 3</i> , 95-115. Bingley, UK Emerald Group Publishing Limited.
2011	Harwood, D. & Copfer, S. (2011). Teasing in schools: What teachers have to say. <i>The International Journal of Interdisciplinary Social Sciences</i> , 6(3), 75-92.

CONFERENCE PRESENTATIONS, PAPERS, AND POSTERS

- Copfer Terreberry, S. and Specht, J. (May, 2017). *Students with LD: Are we meeting their needs in today's university classrooms?*. Presented at the Canadian Society for the Study of Education Annual Conference, Toronto, Ontario, Canada.
- Copfer Terreberry, S. and Specht, J. (June, 2016). *University contexts: Are we meeting the needs of students with learning disabilities?*. Presented at the Annual Conference of The Society for Teaching and Learning in Higher Education, London, Ontario, Canada.
- Copfer Terreberry, S. (April, 2016). *Understanding classroom support procedures for students with LD in higher education: A Canadian perspective*. Presented at the Council for Exceptional Children Annual Convention and Expo, St. Louis, Missouri, United States.
- Copfer Terreberry, S. (November, 2015). *LD in context: Are we meeting the needs of students with learning disabilities in Canadian post-secondary institutions?* Presented at the Ontario Council for Exceptional Children Annual Conference, Niagara Falls, Ontario, Canada.
- Copfer Terreberry, S. (June, 2015). *Understanding barriers of access to support and accommodation for students with LD in post-secondary settings: Perceptions of university students and faculty*. Presented at the Canadian Society for the Study of Education Annual Conference, Ottawa, Ontario, Canada.
- Hansen, K. & Copfer Terreberry, S. (June, 2015). *Are faculty prepared to teach students with LD? Developing instruments to measure faculty and student perceptions*. Presented at the Canadian Society for the Study of

Higher Education Annual Conference, Ottawa, Ontario, Canada.

- Copfer, S. (November, 2013). *Beyond K-12: Examining the transition from secondary to post-secondary contexts for students with learning disabilities*. Presented at the Ontario Council for Exceptional Children Annual Conference, Niagara Falls, Ontario, Canada.
- Copfer, S. (May, 2013). *Investigating the provision of support and accommodation for students with LD in Canadian postsecondary institutions*. Presented at the Canadian Society for the Study of Education Annual Conference, Victoria, British Columbia, Canada.
- Copfer, S. (May, 2012). *Students' perceptions of preparedness for the transition from secondary to post-secondary education*. Presented at the Canadian Society for the Study of Education Annual Conference, Waterloo, Ontario, Canada.
- Copfer, S. (April, 2012). *Identity development processes in adolescence*. Presented at the Research in Education Annual Conference, Western University, London, Ontario.
- Copfer, S. (March, 2012). *Identity development and adolescence*. Presented at the Western University Annual Research Day, Western University, London, Ontario.
- Copfer, S. & Harwood, D. (July, 2011). *Teachers' and children's perceptions of teasing in the school environment*. Presented at the Sixth International Conference on Interdisciplinary Social Sciences, New Orleans, LA.
- Copfer, S. & Harwood, D. (May, 2011). *Teachers' perceptions of teasing in the school environment*. Presented at the Canadian Society for the Study of Education Annual Conference, Fredericton, New Brunswick, Canada.

MEMBERSHIPS IN SCHOLARLY OR PROFESSIONAL ORGANIZATIONS

2008-Present	Member, Ontario College of Teachers
2011-Present	Member, Canadian Society for the Study of Education (CSSE)
2016	Member, The Society for Teaching and Learning in Higher Education (STLHE)
2016	Member, The Council for Exceptional Children (CEC)
2015-2016	Member, Canadian Society for the Study of Higher Education (CSSHE)

ACADEMIC ACTIVITIES

2013-2014	University Graduate Council Representative, Western University
2012-2013	Advisory Committee, Research in Education Symposium, Western University
2012-2013	Mentor, Incoming Student Mentorship Program, Western University
2012-2013	Planning Committee Member, Doctoral Seminar Series, Western University
2012	Committee Member, Research in Education Symposium, Western University
2012	Educational Leadership Program Facilitator, Western University
2009-2010	Mentor, Conversation Colleagues Program, Brock University