# Exploring Perceived Stigma, Risk and Resilience Among University Students with Learning Disabilities and Attention Deficit Hyperactivity Disorder

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**Abstract**

Students with learning disabilities (LD) and attention deficit hyperactivity disorder (ADHD) are an emerging clientele in post-secondary institutions, and may have difficulties with various academic skills. The risk and resilience framework can be applied to this population in order to discern what factors contribute to academic successes and difficulties. Stigma theory (Blaine, 2000; Goffman, 1963; Jones et al., 1984; Link & Phelan, 2001) will be used to investigate self-perceptions of stigma as a potential risk factor for university students with LD and ADHD. Proponents of stigma theory hypothesize that self-perceptions of stigma arise from the perceived association between one's disability and negative stereotypes. Such perceptions are proposed to contribute independently to reduced likelihood to disclose one's disability, as well as emotional difficulties such as increased depressive symptoms and reduced self-efficacy. In this dissertation, the impact of perceived stigma on variables implicated in risk and resilience (i.e., disclosure, self-efficacy and depressive symptoms) was explored among a sample of university students with a diagnosis of LD and/or ADHD from 22 participating Canadian universities ($n$ = 212; 126 females, 86 males). The objectives were twofold. First, an exploratory analysis examining variables that predict the degree of perceived stigma highlighted three significant predictor variables of gender, reported academic difficulty and reported family support. Specifically, males, individuals who reported high levels of academic difficulty and those who reported low levels of family support were significantly associated with a higher level of perceived stigma. Second, multiple regression analyses were employed to test both the direct effect of stigma on the outcome variables (i.e., depression, self-efficacy) and the mediating effect of disclosure using the

path analytic approach. Results showed that perceived stigma had a significant direct effect on self-efficacy, but not depression. Further, mediation analyses indicated that this relationship was partially mediated by disclosure; individuals higher in disclosure ratings were associated with higher self-efficacy ratings, and the overall effect of stigma was reduced when disclosure ratings were accounted for. The findings support the theoretical importance of perceived stigma as an independent risk factor with negative implications for disclosure of one's disability and self-efficacy, two potential protective factors. Findings were not supported for depression. Implications for stigma theory, school psychologists and service provision are discussed.

**Résumé**

Les élèves ayant des troubles d'apprentissage (TA) et de déficit de l'attention avec hyperactivité (TDAH) sont une clientèle émergente dans les établissements postsecondaires, et peuvent avoir des difficultés avec diverses compétences académiques. Le cadre de recherche visant le risque et la résilience peut être appliqués à cette population de façon à pouvoir discerner les facteurs qui contribuent aux succès académiques ainsi que des difficultés. La théorie de la stigmatisation (Blaine, 2000; Goffman, 1963; Jones et al, 1984;. Link & Phelan, 2001) sera utilisée pour étudier les perceptions de stigmatisation comme étant un facteur de risque potentiel pour les étudiants ayant des TA et de TDAH. Les partisans de la théorie de la stigmatisation émettent l'hypothèse que les perceptions de stigmatisation résultent de la perception associée à son handicap et les stéréotypes négatifs. Ces perceptions sont proposes pour contribuer de façon indépendante à la probabilité réduite de divulguer son handicap, ainsi que des difficultés émotionnelles tells que l'augmentation de symptômes dépressifs et la réduction de l'auto-efficacité. Dans cette thèse, l'impact de la stigmatisation perçue sur les variables impliquées dans le risque et la résilience (c'est à dire, la divulgation, l'auto-efficacité et les symptômes dépressifs) a été exploré auprès d'un échantillon d'étudiants universitaires avec un diagnostic de TA et TDAH ; ces étudiants provenant de 22 universités canadiennes participantes ($n$ = 212; 126 femmes, 86 hommes). Les objectifs étaient de deux ordres. Tout d'abord, une analyse exploratoire examinant les variables qui permettent de prédire le degré de stigmatisation perçu et qui a mis en évidence trois variables signifiantes dont celles du sexe, l'état de la difficulté scolaire et le soutien de la famille. Plus précisément, les hommes, les individus qui ont déclaré des niveaux élevés

de difficultés scolaires et ceux qui ont déclaré de faibles niveaux de soutien de la famille étaient significativement associés à un niveau plus élevé de stigmatisation perçue. Deuxièmement, les analyses de régression multiples ont été utilisées pour tester à la fois l'effet direct de la stigmatisation sur les variables de résultat (les symptômes de dépression et l'auto-efficacité) et l'effet médiateur de la divulgation en utilisant la trajectoire d'approche analytique. Les résultats ont montré que la stigmatisation perçue a eu un effet direct significatif sur l'auto-efficacité, mais non pas sur la dépression. De plus, les analyses de médiation ont indiqué que cette relation a été partiellement médiée par la divulgation; un taux plus haut de divulgation été associés à une meilleure auto-efficacité, et l'effet global de la stigmatisation perçue a été réduite lorsque évaluations de divulgation ont été pris en compte. Les résultats confirment l'importance théorique de la stigmatisation perçue comme un facteur de risque indépendant avec des conséquences négatives pour la divulgation de son handicap et de l'auto-efficacité, deux facteurs de protection. Les résultats n'ont pas été concluants pour la dépression. Les implications pour la théorie de la stigmatisation, les psychologies scolaires et les fournisseurs de services seront discutées.

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## Introduction

There are currently many students in university with LD and/or ADHD (Sideridis, 2007). This emerging clientele has grown steadily in Canada through the past ten years and as such, the student body has been slowly changing. Some students with LD/ADHD will request support services offered through the university, such as at an office for students with disabilities, in order to maximize their success in the highly competitive, achievement oriented university environment. Understanding the risks these students face is important in being able to support these students throughout their academic career. To begin, an introduction to the experiences of students with LD and ADHD in university is provided. The general nature of difficulties among students with LD and ADHD is provided. Following this, perceptions of stigma will be defined, and their possible relevance to this population and the rationale for this study will be clarified.

### Definition of Learning Disabilities (LD)

Generally speaking, the term LD is used to refer to a group of disorders manifested by significant difficulties in academic achievement (e.g., listening, speaking, reasoning, reading, writing, and/or mathematical abilities; Lerner & Johns, 2008). The difficulties associated with LD are not caused by organic issues (e.g., sensory impairment, intellectual disability) or cultural issues (e.g., socio-economic differences, limited English proficiency, insufficient instruction), although they may co-occur. Rather, they are presumed to be caused by a dysfunction in the central nervous system that affects one or more processes related to information processing and learning. Students with LD, despite their strengths, experience idiosyncratic weaknesses in core attributes caused by unevenness in development, which are assumed to be responsible for specific

learning difficulties (Fletcher, Morris, & Lyon, 2003; National Center for Learning Disabilities, 2003). This definition of LD, consistent with the Learning Disabilities Association of Canada (2002), will be used in the present study. Although the specific definition of LD varies depending on the defining body (Keogh, 2005), many institutional definitions have incorporated the main aspects of the preceding general definition of LD (American Psychiatric Association, 2002; Learning Disabilities Association of Canada, 2002; National Center for Learning Disabilities, 2003).

**Definition of Attention Deficit Hyperactivity Disorder (ADHD)**

The clinical definition most commonly used to define ADHD is described in detail in the *Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition, Text Revision* (DSM-IV-TR; American Psychiatric Association, 2002). The main characteristics of this disorder, according to American Psychiatric Association (2002), are difficulties with inattention, impulsivity and hyperactivity. Individuals with ADHD are characterized by one of three subtypes: predominantly inattentive, predominantly hyperactive-impulsive and a combined subtype which comprises symptoms of inattention, hyperactivity and impulsivity. Although previously believed to be a childhood disorder, authors of the DSM-IV-TR note that ADHD does persist into adulthood. Consistent with this, researchers have found that approximately 3% of the adult population have ADHD, and up to 16% of the adult population have one or more sub threshold symptoms of ADHD (Faraone & Biederman, 2005; Wilens, Faraone, & Biederman, 2004). Difficulties experienced by individuals with ADHD are believed to be caused by underlying deficits in executive functioning which are associated with inhibition skills, working memory and self-control (Barkley, 1997; Biederman et al.,

2004; Willcutt, Doyle, Nigg, Faraone, & Pennington, 2005). Behavioural manifestations of this disorder are likely to occur across different contexts and may include difficulty with planning, organization, inhibiting impulsive behaviours, sustained attention and working memory skills.

**Students with LD and ADHD in University**

Given the nature of their disabilities, students with LD and ADHD can have difficulty with various academic skills required for success in university. In order to help students with LD and ADHD cope with academic difficulties during their university career, many universities now offer academic support services (e.g., tutoring, learning skills and time management training, specialized assistive technology, academic accommodations such as extra time for exams). Providing specialized support to students with disabilities, including students with LD and ADHD, has been legally mandated in North America (Sideridis, 2007).

In her influential review, Wong (2003) describes how a risk and resilience framework is useful for understanding the long-term adaptation of individuals with significant academic difficulty, such as individuals with LD and ADHD. This approach entails investigating variables that are associated with similarities and differences across development (Luthar, 1999; Luthar, Cicchetti, & Becker, 2000; Rutter, 1985, 1990; Werner, 1993; Werner & Smith, 1979, 2001). Understanding what variables are associated with different trajectories of development (such as individuals with LD or ADHD who vary in terms of level of academic achievement) can isolate factors that put the individual at-risk for low academic achievement, and also identify processes that promote success despite risk factors. Researchers have found that risk and protective

variables draw from many sources including genetic influences, personality features such as autonomy or self-esteem, family warmth and cohesion, and access to community supports (e.g., Rutter, 1990).

Researchers generally accept that having persistent academic difficulties, such as those experienced by individuals with LD or ADHD, is a risk factor for general life outcomes such as academic and employment success (Cosden, Brown, & Elliott, 2002; Morrison & Cosden, 1997; Wiener, 2002; Wong, 2003). However, applying the risk and resilience framework, having a risk factor such as an LD or ADHD would not necessarily yield negative outcomes such as low academic achievement in university. Rather, in the lens of risk and protective factors, academic outcomes would likely be the result of an interaction between various risks (e.g., significant reading or writing difficulty, difficulty with sustained attention) and protective processes (e.g., high self-efficacy and motivation, access to academic support services, supportive peers, professors or family).

**Perceived Stigma as a Risk Factor**

Consistent with the risk and resilience framework, perceived stigma is a possible risk factor for the university population of students with LD and ADHD. Researchers have defined stigma as an association between categories of individuals (e.g., a person with an LD or with ADHD), and negative stereotypes (Blaine, 2000; Goffman, 1963; Jones et al., 1984; Link & Phelan, 2001). The specific association between a membership category and negative stereotypes, whether held by the self or others, is what defines stigma. This definition also states that perceived stigma contributes directly to feelings of shame, sadness, guilt, and reduced self-efficacy. As well, feelings of shame and/or sadness that arise from perceived stigma are believed to contribute to reduced disclosure,

or telling others about one's disability. Proponents of stigma theory including Goffman (1963), Blaine (2000) and Link and Phelan (2001) do not state whether disclosure of one's disability is always positive, negative, or both, simply that perceived stigma is associated with reduced likelihood to disclose and attempts to hide one's difficulties.

Contemporary theories describing the negative effects of disability labeling on emotional well being and disclosure of one's disability provide an expansion of Goffman's (1963) original conceptualization of stigma. More recently, researchers have explored various intrapersonal and interpersonal factors that contribute to and interact with perceived stigma (Jones et al., 1984; Link, Cullen, Struening, Shrout, & Dohrenwend, 1989). Stigma theory has garnered significant attention and has a prolific literature that includes various populations of individuals belonging to certain group categories, including those with various forms of physical and mental illnesses (Corrigan, 2005; Couture & Penn, 2003; Kellison, Bussing, Bell, & Garvan, 2010; Link, Yang, Phelan, & Collins, 2004; Pescosolido, 2007; Rüsch, Angermeyer, & Corrigan, 2005). Further, though this area of research began early in the 1950's, some researchers have found that there is little evidence for the impact of stigma being attenuated across generations, despite increased public knowledge and awareness about physical and mental illnesses (Crocker, Major, & Steele, 1998; Link & Phelan, 2001; Phelan, Link, Stueve, & Pescosolido, 2000). Taken together, the existence of stigma, and its association with negative effects, has been well established among groups with various physical or mental illnesses and continues to remain a significant risk factor in the contemporary world (e.g., Hayward & Bright, 1997).

Currently, little is known about how individuals with LD and ADHD specifically

are prone to perceive stigma regarding their disabilities. As individuals progress through their educational careers, many variables could affect the development of perceptions of stigma among students with LD and ADHD in university. It is currently unclear whether perceived stigma is relevant to university students with LD and ADHD and if so, how perceived stigma develops over time. Developing our understanding of whether stigma exists and what predicts perceived stigma could help inform researchers, educators, and other professionals regarding whether it is worthwhile to address and design interventions in this area. Researchers in the area of stigma theory have argued that disabilities that are more severe and easily detected by others are associated with higher levels of perceived stigma (Blaine, 2000; Goffman, 1963; Link & Phelan, 2001); further, more severe disabilities are identified earlier in children's educational careers (Dang, Warrington, Tung, Baker, & Pan, 2007; Gersten, Jordan, & Flojo, 2005). Thus, individuals with more severe difficulties associated with LD, ADHD, or both may also have a longer personal history as an individual identified as having a disability, and the effect on perceptions of stigma is unknown (Gill, 1997; Rosenfield, 1997). Further, other known protective variables such as family support and socio-economic status (SES) background could also differentially predict perceived stigma. However, the relationships among these variables and perceived stigma among university students with LD and ADHD are currently unclear.

As previously mentioned, proponents of stigma theory argue that perceptions of stigma contribute directly to depressive symptoms such as feelings of sadness, shame, guilt, and helplessness. Researchers have found that feelings of self-efficacy, in addition to emotional well-being, coping skills, and low levels of depressive symptoms and

anxiety, play a protective role for individuals with LD (Gerber, Ginsberg, & Reiff, 1992; Goldberg, Higgins, Raskind, & Herman, 2003; Madaus, Foley, McGuire, & Ruban, 2002; Raskind, Goldberg, Higgins, & Herman, 1999; Werner, 1993; Werner & Smith, 2001). Therefore, consistent with the risk and resilience framework, it is important to test whether perceptions of stigma contribute to lower self-efficacy and increased depressive symptoms. If true, this could significantly increase the impact of academic difficulties experienced by students with LD and ADHD and thus highlight perceived stigma as an important risk factor for this group.

In addition to direct effects on depressive symptoms and self-efficacy, researchers in the area of stigma theory argue that perceived stigma contributes to reduced likelihood of disclosure, or telling others about one's disability. This could include disclosure to personal friends and romantic partners, or with individuals in one's academic milieu, such as professors and support staff for students with disabilities, who could provide beneficial academic support. It is possible that disclosure would not always yield positive effects. However, generally speaking, disclosure has been associated with better long term outcomes for individuals with LD and ADHD, including outcomes such as improved behavioural adjustment and academic achievement (Cosden et al., 2002; Cosden & McNamara, 1997; Demaray & Elliott, 2001; Goldberg et al., 2003; Raskind et al., 1999; Rothman & Cosden, 1995; Werner, 1993; Werner & Smith, 2001; Wiener, 2002). In addition, researchers have found that students with disabilities who receive support services at their college or university are more likely to persist in their studies and graduate at the same rate as their peers without disabilities (Jorgensen et al., 2005; Outcomes Group, 1998). Generally speaking, disclosure has been associated with more

positive outcomes. Therefore, perceptions of stigma could pose a risk to individuals with LD and ADHD by contributing to the avoidance of disclosure and the consequent lack of protective social and academic support specifically related to their disability. As with reduced self-efficacy and increased depressive symptoms, reduced access to social support and student services could also exacerbate the impact of academic difficulties experienced by individuals with LD and ADHD. Again, this would highlight perceived stigma as a specific risk factor for individuals with LD and ADHD.

To summarize, the present dissertation seeks to investigate the importance of perceived stigma within the risk and resilience framework. University students with LD and ADHD will be asked if they in fact perceive stigma, operationally defined as their self-report of feelings of shame, embarrassment, and guilt specifically related to their identification as having an LD, ADHD, or both. The project will consist of two main objectives. The first objective will be to explore the relationship between perceptions of stigma and variables that could predict stigma perceptions. Specifically, the relationships between reported severity of academic difficulty, reported age at time of diagnosis, ratings of family support, SES, gender and perceived stigma will be examined using an exploratory regression analysis. The second objective of the present dissertation is to provide a direct test of stigma theory. This will be accomplished by investigating the relationships between perceived stigma, self-reported disclosure ratings, depressive symptoms and self-efficacy. This dissertation will develop an exploration of risk factors for perceived stigma among university students with LD and ADHD. In addition, this dissertation will be the first to directly explore perceptions of stigma among youth with LD and ADHD, and to test stigma theory directly to determine whether or not

perceptions of stigma are a significant risk factor for students with LD and ADHD in university. This will build upon two important existing literatures, namely, the exploration of risk and resilience factors among individuals with LD and ADHD, and also the exploration of perceived stigma and its effects. Finally, implications for school psychologists, educators, and researchers in the area of educational psychology in terms of understanding whether perceived stigma is a risk factor worthy of attention will be explored.

## Chapter 1. Review of Literature

University students with LD and ADHD are growing in number. Stigma has been defined by researchers as the existence of negative stereotypes that are linked to group membership. As such, this chapter will explore the risk and resilience framework in relation to this population. Risk and protective factors that have been documented among university students, including having LD or ADHD, disclosing one's disability, self-efficacy and low levels of internalizing symptoms will be reviewed. Further, the chapter will review the negative impact of stigma found among other groups of individuals and the potential implications for university students with LD and ADHD. Finally, the chapter will bring these different literatures together to highlight the importance of investigating stigma in relation to disclosure, self-efficacy and depression.

### Students with Learning Disabilities (LD) and Attention Deficit Hyperactivity Disorder (ADHD) in University

Students with LD and ADHD currently represent approximately 2.13% of the university student population in the United States of America (National Center for Learning Disabilities, 2009). During the past two decades there has been a growing number of students with LD and ADHD attending post-secondary institutions across North America. The professional organization of support staff for students with disabilities attending university in Quebec, the Association Québécois Inter-Universitaire des Conseillers aux Étudiants Ayant des Besoins Spéciaux *(*AQICEBS), has shown an increase from 194 students with all types of disabilities in 1995 to 2,771 in 2008. Of the 2,771 students who had a disability in 2008, 540 (19%) had a type of LD, and 280 (10%) had ADHD. According to the AQICEBS data, students with LD and ADHD attend in

growing numbers and also across faculties; further, they are the fastest growing group of university students with disabilities, and growing significantly faster than students without disabilities. Similarly, in the entire province of Ontario, approximately 13,000 students with LD and ADHD are attending university and college (Harrison & Holmes, 2008), and researchers have found that LD is the most common type of disability among all students with disabilities (Ontario Human Rights Commission, 2003).

The rise in students with LD attending universities in Canadian provinces such as Quebec and Ontario has been paralleled in the United States and internationally (Norton, 1997; Sideridis, 2007). According to a recent report by the National Center for Learning Disabilities (2009), the U.S. Department of Education found that 0.83% of undergraduates in post-secondary institutions across the U.S. reported having an LD, and 1.21% reported having ADHD. Similarly, in his review of the prevalence of students with all types of disabilities in European countries for the Organization for Economic Co-operation and Development (OECD), Ebersold (2008) found prevalence rates of disabilities varied depending on the model used to identify disabilities. For example, professionals in France identify students on the basis of medical symptoms and diagnoses, resulting in a prevalence rate of 0.40% of the total student population in higher education having any type of disability. Countries where professionals use functional impairments in activities of daily living to identify disabilities regardless of a medical diagnosis, including impairments such as significant academic difficulties, have higher rates of identification, such as the United Kingdom (6.5%) and Germany (18.90%). Ebersold notes that across European countries where professionals use a functional model, approximately 40% – 60% of all students with disabilities are identified with

some type of LD or significant academic difficulty, such as a reading disability or writing difficulties.

To respond to the emerging group of students with LD and ADHD in the university setting, many institutions now provide specialized support services, although the exact services offered vary (e.g., Sideridis, 2007). These services could include academic support (e.g., tutoring, study and time management skills training, note-taking, exam accommodations), helping students negotiate needed academic accommodations with professors, and providing a supportive community for students. Researchers have found that students who take advantage of support services are more likely to persist with their studies and graduate at the same rate as their peers without disabilities (Jorgensen, et al., 2005; Outcomes Group, 1998).

The rise in students with LD and ADHD attending university brings forth important questions for researchers in the area of educational psychology and human development, as well as service providers. Specifically, the factors associated with successful transition to university, academic achievement and successful degree completion in students with LD and ADHD are currently being explored. University can be a challenging environment for most students, particularly one with a pervasive and persistent type of processing or executive function deficit that underlies academic skills considered basic at the university level, such as reading or paying attention in class. Understanding what factors are associated with success among students with LD and ADHD would help professors and university staff support these students effectively by targeting environmental and/or individual factors (e.g., perceptions of stigma, depressive symptoms, self-efficacy, needed academic accommodations, attitudes towards students)

that are empirically proven to be related to success and well-being.

It is important to note that the numbers published by AQICEBS represent only students registered for support services for students with disabilities at their institution. It is possible that even more students with disabilities are attending universities, but do not register themselves for support services and as a result, are not accounted for by these statistics. For example, Fichten et al. (2003) found that as many as 50% - 75% of students with disabilities in post-secondary institutions in Canada do not register themselves for support services. In a related study, the National Committee on Learning Disabilities (2009) found that only 35% of students with all types of disabilities registered for support services for students with disabilities at their postsecondary institution, a disclosure rate that is consistent with Fichten et al. (2003). Given these findings, it is possible that students registered for support services at universities in Canada represent only a subset of the entire population, as the precise disclosure rates of students with LD and ADHD are unknown.

It is currently unclear how many students with LD and ADHD seek out support services and what motivates their choice to do so. Students may not register for services because they are unaware that services exist. Another reason is that students may not think they need services. Consistent with this, the authors of the NCLD report (2009) found that as much as 52% of students with LD who received services throughout elementary or high school did not register for student services at their university because they reported that they did not need services. Further, a third possibility is that students choose to hide their disability and do not receive the support they require or want. Therefore, students may have chosen not to disclose, having learned through previous

experiences that disclosure may not necessarily be an adaptive strategy. A final possible explanation for lack of disclosure could be that students are fearful of stigma associated with their disability (Goffman, 1963; Jones et al., 1984; Norton, 1997; Riddell et al., 2007). In the NCLD report (2009), the authors described that 7% of students felt they needed services but chose not to access them. This may have been for fear of stigma, or a lack of trust that services offered are helpful. Perceived stigma could be a risk factor that is not yet understood, one that could contribute to emotional difficulties and reduced disclosure. To situate perceived stigma as a possible risk factor within the existing literature, the risk and resilience framework will be introduced, followed by a review of risk and protective factors for university students with LD/ADHD and finally, Goffman's stigma theory will be presented as a possible addition to the risk pathway individuals with LD and ADHD.

**Using the Risk and Resilience Framework to Understand the Development of Individuals with LD and ADHD**

To better understand how perceptions of stigma may be affecting individuals with LD and ADHD and to put this theory in a larger context, the risk and resilience framework, a conceptual model that explains how different variables affect the successful functioning of individuals with LD and ADHD, will be reviewed. The risk and resilience conceptual framework is used to delineate the factors and processes through which individuals maintain positive outcomes in the face of adversity (e.g., Cowen, Work, & Wyman, 1997; Luthar, 1999; Luthar et al., 2000; Rutter, 1985, 1990; Werner, 1993; Werner & Smith, 1979, 2001). Researchers have argued that the risk and resilience framework is useful in understanding how individuals with persistent academic difficulty,

such as individuals with LD and ADHD, are optimally successful despite ongoing academic challenges (Cosden et al., 2002; Margalit, 2003; Morrison & Cosden, 1997; Wiener, 2002; Wong, 2003). In his review on the topic, Raskind (2009) emphasizes that there is no clear relationship between risk factors and outcomes such as academic achievement or job satisfaction among individuals with persistent academic difficulty. Rather, risk and protective factors interact and differentially affect the individual. Developing an understanding of what risk and protective factors are relevant to individuals with LD and ADHD enables educators to understand how to promote success in various domains despite being at-risk due to ongoing and pervasive academic difficulties, and provides important directions for future research. Perceived stigma fits well within the risk and resilience framework, and could be conceptualized as a risk factor that adversely affects individuals above and beyond the difficulties associated with having an LD or ADHD. Further, perceived stigma could directly contribute to the avoidance of certain protective factors, such as social support and specialized university student services. The protective and risk factors relevant to individuals with LD and ADHD and their relevance to perceived stigma will be reviewed below.

**Protective Factors for Individuals with LD and ADHD**

There is evidence that many individuals with LD succeed in having successful and personally satisfying lives despite several risk factors (e.g., Werner & Smith, 2001). Certain factors have been found to promote resilience, defined as the ability to cope with stress, among adults with persistent academic difficulty such as LD and ADHD. These protective factors draw on a number of sources. For example, researchers have found that intrinsic characteristics such as physical attractiveness and positive temperament promote

resilience (Cosden et al., 2002; Werner, 1993). One finding that has consistently emerged in the literature is that social support from peers, parents, teachers, and other adults is highly protective (Cosden, et al., 2002; Cosden & McNamara, 1997; Demaray & Elliott, 2001; Morrison & Cosden, 1997; Werner, 1993; Werner & Smith, 2001; Wiener, 2002, 2004). Support from parents and teachers has also found to be protective, particularly because it promotes a healthy self-concept (Cosden et al., 2002; Demaray & Elliott, 2001; Rothman & Cosden, 1995). Similarly, Wiener (2002, 2004) found that friendships that are stable over time, reciprocal, and that had high ratings of quality (e.g., helpfulness, trust, agreement on goals) play an important role in the emotional well-being of individuals with LD. Cosden and McNamara (1997) found that college students with LD who accessed support services for students with disabilities experienced higher self-esteem and self-concept. Finally, in her longitudinal study following 698 children born in Kauai, Hawaii in 1955, Werner (1993) found that supportive parenting and supportive adults other than parents (e.g., grandparents, mentors, youth leaders, religious figures, coaches) who had confidence in the child and held them to high expectations also promoted resilience despite adversity. Taken together, these researchers have provided evidence that social support, which comes in various forms, is associated with better resilience in the face of stress for individuals with academic difficulty such as LD and ADHD.

Despite the evidence that social support is a protective factor for individuals with LD, the research is unclear in terms of specifying in what context these individuals seek support, with whom, and what might prevent them from doing so. For individuals who do not seek support, it is possible that other variables, such as perceived stigma, prevent

them from doing so. As previously reviewed, there is a vast literature on perceived stigma among individuals with mental health and physical disorders, and the effects of stigma on disclosure (Hayward & Bright, 1997; Link & Phelan, 2001). Given this, it is important to expand this literature and explore whether perceptions of stigma are associated with the reduced disclosure to peers, as well as other adults, including university support service providers or professors, as this could limit personal and academic support, known protective factors.

In addition to social support, self-efficacy and emotional well-being have been consistently associated with resilience among individuals with LD. Gerber, Ginsberg, and Reiff (1992) investigated factors that were associated with employment success using qualitative interviews with 71 adults with LD. A common theme that emerged among adults who enjoyed employment success was a sense of control over their internal decisions (e.g., choosing what goals to work on), as well as resourcefulness and creativity. Similarly, researchers conducting a 20-year longitudinal study investigated the individual characteristics and life circumstances associated with the successful outcomes of 41 individuals with LD (Goldberg et al., 2003; Raskind et al., 1999). A sense of control over one's life and difficulties, perseverance in the face of difficulty, the presence and use of social support systems, and effective emotional coping strategies to deal with stress were associated with academic and employment success. Consistent with the studies by Werner (1993) and Gerber et al. (1992), both studies described here are evidence of the powerful protective effect of a sense of self-efficacy and emotional coping, and the absence of depressive symptoms.

In addition to social support, self-efficacy and emotional well-being are known

protective factors, yet their relationship to stigma is unclear. For students with LD and ADHD in university, perceptions of stigma are theoretically proposed to contribute directly to feelings of helplessness, shame, and sadness, which could directly lower an individual's sense of self-efficacy and their overall emotional coping and well-being (e.g., Blaine, 2000; Link & Phelan, 2001). The researchers cited above have not explored self-efficacy and depression specifically in relation to stigma among individuals with LD and ADHD. Therefore, it is important to understand how perceptions of stigma affect self-efficacy and depressive symptoms, as both are known to affect the long-term success of individuals with LD and ADHD.

In his review of these influential studies, Raskind (2009) notes that all of these groups of researchers found similar protective factors at play for successful adults who had experienced persistent academic difficulty. Each group of researchers found that social support, and the individuals' ability to make use of this support, be it from parents, teachers, peers or other members of the community, was associated with more positive outcomes. However, none of these studies measured perceptions of stigma, as well as measured the impact of perceived stigma on disclosure management and on social support and help seeking. In addition to the positive effects of social support, emotional well-being and self-efficacy are also consistently found to be protective and to promote resilience despite on-going difficulty and stress. Yet, once again perceived stigma could directly contribute to reduced self-efficacy and increased depressive symptoms. Therefore, it is important to directly test the impact of perceived stigma on individuals with LD and ADHD, including their disclosure management, self-efficacy and depressive symptoms in order to understand whether perceptions of stigma put them at greater risk

for difficulties by acting on variables that are known to play an important role in their long-term adjustment and well-being.

**Risk Factors Associated with Academic Achievement**

There is consensus in the literature on risk and resilience among individuals with LD and ADHD that certain risk factors consistently affect their lives. These specific risk factors may interact with general risk factors such as difficult temperament, medical conditions, poverty, parental mental health disorders, malnutrition or familial dysfunction and discord (e.g., Raskind, 2009; Sameroff & Chandler, 1975). However, the unique profiles of processing and executive function deficits found among individuals with LD and ADHD can result in repeated academic, social and behavioural difficulties (e.g., Lerner & Johns, 2002; Silver, 2002). Many researchers have found that individuals with LD and ADHD are at risk for higher rates of mental health difficulties and disorders such as depression, anxiety, suicide, drop-out, and drug abuse (Bender, Rosenkrans, & Crane, 1999; Heath & Ross, 2000; Hoy et al., 1997; Kessler et al., 2006; Lambert & Hartsough, 1998; Murray, Goldstein, Nourse, & Edgar, 2000). As well, adults with LD are at higher risk for unemployment, lower employment earnings and less job satisfaction (Goldstein, Murray, & Edgar, 1998; Greenbaum, Graham, & Scales, 1996; Witte, Philips, & Kakela, 1998). This research highlights the importance of investigating risk and protective factors in order to provide support to individuals with LD and ADHD to help improve outcomes in terms of mental health and job success and satisfaction. Again, the experience and impact of stigma remains absent from this literature, despite a plethora of research in other areas that documents a link between stigma and the outcomes reported here (e.g., Blaine, 2000). Consistent with the risk and resilience approach, the risk factors affecting

the lives of individuals with LD and ADHD make it more challenging for them to successfully navigate their social, academic and emotional lives both as children and adults. Perceived stigma provides another potential risk factor that could contribute directly to higher levels of depressive symptoms, reduced self-efficacy and the avoidance of protective social and academic support.

**Risk and Protective Factors Among University Students with LD and ADHD**

It is important to note that university students with LD and ADHD may be exposed to a uniquely competitive atmosphere that emphasizes academic ability, putting their difficulties at the forefront of their daily experiences (Crocker et al., 1998; Riddell et al., 2007). As such, students with disabilities such as LD/ADHD would likely benefit from supportive and understanding staff that are willing to effectively accommodate and support them. Many researchers have reported that university professors and staff self-report positive and open-minded attitudes towards students with disabilities and a willingness to provide instructional accommodations (Houck, Asselin, Troutman, & Arrington, 1992; Jensen, McCrary, Krampe, & Cooper, 2004; Matthews, Anderson, & Skolnick, 1987; Nelson, Dodd, & Smith, 1990; Norton, 1997; Riddell et al., 2007). There is also some evidence to suggest that there are discriminatory attitudes towards students with disabilities, including those with LD and ADHD. Despite self-reported willingness, several researchers have also found that professors may be uncomfortable providing support to students with LD and ADHD for reasons such as limited time to provide personalized support, mistrust of the diagnosis of LD or ADHD, and concerns for academic integrity when providing accommodations to students (Jensen et al., 2004; Riddell et al., 2007). In a series of qualitative interviews by Riddell et al. (2007) with

professors, one commented:

> Very few people are going to get up and say so 'I don't wish to help disabled students graduate', and they don't, but when they are overworked anyway, all kinds of new initiatives are coming along from all sides you know, […] then to be asked to go to a lot of trouble for the sake, as I say very often for an individual, or something that will only come up every four or five years, that is a bit of a last straw sometimes. (p. 620)

These comments provide evidence to suggest that the positive attitudes and self-reported willingness to help students exist in tension with a desire to maintain academic integrity, freedom to determine academic standards, and concerns about fairness and time constraints. Further, as highlighted earlier by Link and Phelan (2001), discrimination towards individuals subjected to stigma is not easily observed and often played out subtly. It is possible that although professors may report positive attitudes, they may interact differently with their students with disabilities in subtle ways that are related to negative underlying beliefs and expectations, yet these minor differences may not be readily observed or reported.

As previously reviewed, proponents of stigma theory argue that individuals who are subjected to stigma may try to conceal their disability when interacting with other individuals. Jones et al. (1984) elaborated on this, suggesting that impression management was important for individuals who perceived stigma, particularly in situations where the perceived risks of disclosure are high, such as with an employer. Related to this, Norton (1997) found that almost half of a sample of university students with LD who had failed a course had not disclosed their disability to their professor. When asked directly if they were comfortable discussing their disability with professors, 60% reported feeling comfortable, 25% reported feeling uncomfortable, and 11%

reported judging their comfort with each professor on a case-by-case basis. While most students commented that professors understood their needs, some also noted that at times they perceived faculty to be suspicious, reluctant, or antagonistic towards them, and they expressed considerable hesitation about requesting accommodations. Further, many noted that they wanted to attempt to write an exam without support, before seeking out additional help. This study provides some preliminary evidence that students may perceive stigma in the form of negative expectations or beliefs about individuals with disabilities such as LD or ADHD, and that these perceptions affect their choice to disclose proactively in order to prevent future difficulties. However, the researchers did not directly measure stigma and its effects, thus bringing together the existing literature on professors' attitudes, help seeking, and stigma.

In addition to not disclosing as a student, researchers have found that upon graduation, individuals with LD do not always disclose their diagnosis in the workplace (Greenbaum, et al., 1996; Madaus, 2008; Madaus, et al., 2002). Greenbaum, Graham, and Scales (1996) found that although most participants did report that their LD affected their work in some respect, 46.10% did not self-disclose for fear of the negative repercussions in their working environment. Madaus, Foley, McGuire, and Ruban (2002) replicated this finding. In 2008, Madaus found that slightly more individuals were self-disclosing (55%) than in 2002, but many continued not to do so. Further, there is evidence that self-disclosure is associated with a sense of self-efficacy and significantly higher job satisfaction, suggesting that the large percentage of individuals who did not disclose in 2008 (45%) may also experience lower self-efficacy and job satisfaction (Madaus et al., 2002). These findings are critical because they are consistent with stigma theory.

Specifically, proponents of stigma theory would predict that individuals who disclose and have higher self-efficacy perceive less stigma, whereas those who perceive more stigma would be less likely to disclose and more likely to have lower self-efficacy and job satisfaction.

To summarize, university is a highly competitive academic environment. The research reviewed here suggests that although professors and support staff do not openly report discrimination towards students with LD and ADHD, there is confusion and uncertainty surrounding the identification of LD and ADHD, the boundaries of reasonable accommodation and the need to maintain academic integrity (Jensen, et al., 2004; Riddell, et al., 2007). Further, this is based on self-report data that may not capture subtle differences in how professors interact with students with disabilities (Link & Phelan, 2001). Researchers have found that students do engage in some disclosure management strategies and don't always want to discuss their disability with professors, which is consistent with stigma theory (Houck et al., 1992; Norton, 1997). This effect continues into employment where almost half of individuals report not disclosing their disability, a finding directly linked to reported self-efficacy and job satisfaction. Finally, the university context primarily values academic achievement, which could make individuals with pervasive academic difficulty such as individuals with LD and ADHD particularly susceptible to stigmatization (Crocker et al., 1988).

**Stigma Theory**

Stigma was first defined and described in detail by Goffman (1963). Goffman began his stigma theory by describing how individuals naturally categorize others according to defining attributes. Stigma occurs when an individual belongs to a category

that is associated with negative stereotypes, changing a stigmatized individual's identity "from a whole and usual person to a tainted, discounted one" (Goffman, 1963, p. 3). Goffman described how individuals with specific impairments are assumed by others to be disabled in ways unrelated to their actual disability. The associations made by the general population regarding a specific group of people (such as people with different types of disabilities) and negative, culturally defined stereotypes are considered to be the essence of stigma.

Crocker, Major, and Steele (1998) expanded Goffman's work by emphasizing the importance of understanding the social context within which stigmatization occurs. Certain characteristics are more devalued and stigmatizing in particular contexts. For example, students with LD and ADHD may feel that their academic difficulties are particularly stigmatizing in the university atmosphere, where the emphasis is on successful academic achievement. In contrast, they may perceive less stigma in contexts where their academic difficulties do not affect their functioning to the same degree or are less heavily accentuated, such as in their social relationships or when completing work that is outside of their areas of difficulty. Therefore, individuals may perceive stigma to a different extent depending on the context. However, Goffman and Crocker et al. agreed that the relationship between social categories and negative stereotypes, although culturally and contextually defined, is the hallmark feature that defines perceptions of stigma; in turn, this may be exacerbated by the salience of one's difficulties in different environments.

**Experienced and Perceived Stigma**

Individuals subjected to stigma may directly experience discrimination or social

rejection resulting from their stigmatization (Goffman, 1963). Discrimination generally refers to the exclusion or social rejection of individuals based on social categories. Goffman argued that discrimination towards individuals subjected to stigma is easily rationalized by other individuals in a variety of ways, such as developing animosity towards uncomfortable differences, associating a wide range of imperfections on the basis of one attribute, and blaming the individual for how he/she is treated. Experienced discrimination and social exclusion resulting from stigma is proposed to reduce social, scholastic and/or employment opportunities (Jones et al., 1984; Link & Phelan, 2001; Link, Struening, Neese-Todd, Asmussen, & Phelan, 2001).

Several researchers have tried to understand how purposeful discrimination occurs towards individuals subjected to stigmatization. In their review, Link and Phelan (2001) argued that status hierarchies form automatically within small groups of individuals based on some type of salient status (e.g., race, disability). Individuals perceive the status hierarchy and this informs performance expectations of each individual in the group based on negative stereotypes, leading to subtle differences in how group members interact (e.g., dominating the conversations, interrupting each other). Link and Phelan concluded that measuring the direct effects of stigma, or directly experienced discrimination resulting from stigma, is quite challenging, because discrimination is played out subtly in a complex labyrinth of expectations that are linked to underlying discriminatory attitudes. As a result, direct discrimination resulting from stigma is difficult to observe for research purposes.

However, individuals subjected to stigma do report having experienced direct discrimination (Link & Phelan, 2001). At times, obvious forms of rejection can be

observed, such as job or apartment refusal. Structural discrimination can also be observed. For example, Fine and Asch (1988) argue that institutions often disadvantage racial minority groups, although no overt individual prejudice is typically observed. The fact that stigma is played out at the individual, group, and institutional level highlights the difficulty measuring and capturing its pervasive effects.

In addition to these forms of direct discrimination, which can be difficult to observe, researchers argue that individuals *perceive* stigma whether or not they experience discriminatory interactions with others (Blaine, 2000; Goffman, 1963; Hayward & Bright, 1997; Jones et al., 1984; Link & Phelan, 2001). Stigma is perceived as the association between negative stereotypes and individual characteristics that are used to categorize groups of individuals, such as using specific learning deficits to classify individuals as having a learning disability. The individual is prone to perceive stigma by virtue of this association to negative stereotypes whether they actually experience direct discrimination or not. Notably, individuals with mental illness represent a unique example because if they manage their symptoms and function successfully within society, their disability is not easily noticeable by others, in contrast to an individual with a visible disability (e.g., noticeable physical impairment). However, it is believed that individuals who can conceal their symptoms still perceive stigma caused by an association with culturally prevalent negative stereotypes (e.g., Blaine, 2000; Crocker, Major, & Steele, 1998; Goffman, 1963; Link & Phelan, 2001). Thus, an individual's awareness of belonging to a group that is associated with prevalent negative stereotypes is susceptible to perceived stigma, regardless of whether they experience discrimination. Notably, individuals may perceive stigma to varying degrees (Crocker, Major, & Steele,

1998).

The hypothesized effects of perceived stigma are noteworthy and extend beyond the effects of direct discrimination described earlier, which serve to reduce a person's opportunities in the social, academic and employment domains. Goffman argued that perceived stigma negatively affects an individual's emotional well-being, contributing to overall feelings of unhappiness, including shame, frustration, and guilt; in some cases, he argued that perceived stigma was powerful enough to maintain mental illnesses despite treatment efforts. More recently, researchers have attenuated this argument, stating instead that perceived stigma exacerbates pre-existing difficulties by virtue of its effect on self esteem, social interactions and increased maladaptive coping strategies (Jones et al., 1984; Link, 1982; Link, Cullen, Struening, Shrout, & Dohrenwend, 1989). As well, individuals may fear the public identification of their disability and potential consequences of disclosure. In line with these theories, researchers investigating the effects of perceived stigma among individuals with mental illnesses have found support for a variety of associated negative outcomes (Link et al., 1989; Hayward & Bright, 1997; Major & O'Brien, 2005; Pescosolido, Martin, Lang, & Olafsdottir, 2008; Rosenfield, 1997; Wright, Gronfein, & Owens, 2000).

When applying stigma theory to students with LD and ADHD, the distinction between experienced and perceived stigma is a critical one because both types of stigma have different outcomes. Although students may or may not experience direct discrimination resulting from stigma, proponents of the theory would predict that perceived stigma independently puts the student at enhanced risk for increased depressive symptoms and reduced self-efficacy, and may also contribute to the avoidance of

disclosure to professors, support staff, peers, and romantic partners. The avoidance of disclosure is proposed to reduce the individual's network of support specifically related to their difficulties. It is possible that students with LD and ADHD perceive stigma as the result of commonly held misunderstandings or negative stereotypes regarding individuals with LD and ADHD, although this has never been directly investigated. Further, Crocker, Major, and Steele's (1998) emphasis on the social context highlights the importance of understanding stigma not of students with LD and ADHD in general, but of students with LD and ADHD specifically in a university setting. Students with LD and ADHD may perceive more stigma in university than in other settings in their lives (e.g., with friends or family) given the high importance of academic achievement in the university context. Therefore, consistent with Crocker, Major and Steele (1998) the university setting may contribute uniquely to perceptions of stigma. It is necessary to understand whether perceptions of stigma contribute to disclosure management, higher levels of depressive symptoms and lower self-efficacy in university students with LD and ADHD independently from the difficulties that are associated with having an LD or ADHD.

**Critiques of Stigma Theory**

Stigma theory is not without its critics. Although useful for conceptualizing how stigma may affect individuals, researchers investigating stigma have been criticized for failing to provide the perspectives of the participants who are subjected to stigma (Fine & Asch, 1988; Kleinman et al., 1995; Sayce, 1998). For example, Fine and Asch (1988) argue that researchers occasionally portray individuals with disabilities as being helpless, passive victims, which better reflects the researchers underlying beliefs about individuals subjected to stigma than the actual perspective of the participants. Similarly, Oliver

(Oliver, 1984, 1992) and Fiske (1998) argue that researchers tend to focus on interactions between individuals who are and are not subjected to stigma. This micro-level focus fails to capture how consistent discriminatory policies and attitudes from diverse individuals (including those involved in policy development) may reduce a person's life chances, such as via reduced access to education, employment, or social activities resulting from discriminatory policies or behaviour. Both perspectives highlight how researchers can take a broader perspective in the domain of stigma theory in order to fully enhance and explore the effects of stigma on individuals.

Despite these criticisms, Goffman's (1963) conceptualization of stigma and Link et al.'s expanded version of labeling theory (1989) and the consequent effects were noteworthy contributions that yielded many empirical investigations on the topic of stigma. Across disciplines researchers began investigating the perceptions of stigma among different populations, focusing primarily on marginalized groups such as ethnic and racial minorities, individuals with medical or mental illnesses, and myriad other types of social "differentness" that could be stigmatizing (Crocker, et al., 1998; Link & Phelan, 2001). Researchers have struggled to quantify stigma and its effects, leading to a problem in the field with definition and measurement (Link & Phelan, 2001; Stafford & Scott, 1986). Many researchers have adapted Goffman's original definition of stigma to apply to specific populations. Link and Phelan (2001) have suggested that these slightly variable emphases within the definition of stigma are the result of researchers investigating stigma from an array of different circumstances and populations. As well, the multidisciplinary nature of research looking at the outcomes and effects of stigma has yielded different frames of reference. Nonetheless, the definitions described here share

many commonalities. Thus, Goffman's seminal discussion of stigma theory continues to form the basis of research in this area.

In conclusion, proponents of stigma theory argue that individuals with disabilities, such as university students with LD and ADHD, will perceive stigma as the result of an association between their disability and negative stereotypes prevalent among individuals in their specific cultural context (Crocker et al., 1998). As previously reviewed, perceived stigma is believed to directly affect emotional well being, contributing to feelings of frustration, shame, guilt and sadness. Further, reduced disclosure resulting from perceived stigma could contribute to the avoidance of support services and social support that could play a important role in a student's academic success.

**Early Experiences and Perceptions of Stigma**

As individuals progress through their educational careers, many variables could affect the development of perceptions of stigma among students with LD and ADHD in university. One variable that could be related to perceptions of stigma is the severity of one's difficulties. Goffman (1963) and Link and Phelan (2001) argued that more visible disabilities, which are more severe and easily detected by others, make individuals more likely to perceive stigma. In addition, although the age at time of diagnosis of disabilities varies depending on many factors (e.g., availability of services, parental choice to access services), in most cases researchers have found that more severe disabilities are more likely to be identified early on (Dang et al., 2007; Gersten et al., 2005). Having a longer personal history as an individual identified as having a disability could affect the development of perceptions of stigma. For example, researchers have argued that being labeled with a disability is associated with a sense of loss of valued personal

characteristics, life goals and plans, and a re-organization of one's identity in terms of disabilities as opposed to abilities (Jones, et al., 1984; Link, et al., 1989; Rosenfield, 1997). In contrast, researchers have argued that individuals identified with disabilities can resolve any feelings of separation from society by finding ways to integrate their identity within their society, community, and with others (Gill, 1997). Therefore, an individual's age at time of diagnosis and severity of difficulties could be related to perceptions of stigma, given that individuals will differ in terms of when they were diagnosed and how the diagnosis impacted their sense of identity throughout their development.

Relevant to this, individuals with different levels of familial support and from different socio-economic backgrounds may be more or less likely to access services. Parents may differ in their knowledge of available services, their choice to access services and financial resources needed to access additional services offered outside the school (e.g., professional assessments, private tutoring). Further, families may differ in their general acceptance and support towards their child with a disability. To summarize, an individual's history of accessing services, socio-economic status and familial support may influence perceptions of stigma in young adulthood, given that individuals will differ in these previous experiences.

**Summary and Unique Contribution**

Stigma theory (Blaine, 2000; Goffman, 1963; Link & Phelan, 2001) is a useful framework for understanding how perceived stigma could affect students with LD and ADHD in university. As previously reviewed, contemporary proponents of stigma theory predict that individuals with disabilities will perceive stigma regardless of whether they have experienced discrimination directly. As well, perceived stigma is believed to

contribute directly to reduced disclosure, increased depressive symptoms and lower self-efficacy. Investigating perceptions of stigma among university students with LD and ADHD is warranted given the documented importance of social support, which could be limited by perceived stigma and subsequent reduced disclosure (Cosden, et al., 2002; Cosden & McNamara, 1997; Demaray & Elliott, 2001; Rothman & Cosden, 1995; Werner, 1993; Werner & Smith, 2001). Further, perceived stigma could directly impact self-efficacy and emotional well-being, also known protective factors (Gerber, et al., 1992; Goldberg, et al., 2003; Madaus, 2006; Raskind, et al., 1999; Werner, 1993; Werner & Smith, 2001) in the long-term adjustment of individuals with academic difficulty. If Goffman (1963) and Link and Phelan's (2001) argument that perceptions of stigma contribute directly to lower self-efficacy, higher depressive symptoms and reduced disclosure of one's disability is correct, then perceived stigma would be a significant risk factor for individuals with LD and ADHD by acting on known protective variables.

The unique contribution provided by this study is a direct test of stigma theory to determine the existence and consequences of perceived stigma among university students with LD and ADHD. This includes an exploration of variables that could predict perceptions of stigma, such as reported severity of different areas of difficulty, reported age at time of diagnosis, rated family support, gender and socio-economic status. Further, the direct effects of perceived stigma on depressive symptomatology and self-efficacy will be tested, as well as the mediating effects of disclosure on these outcome variables. The research design will allow for a comparison of the perceptions of stigma among individuals with different types of disabilities (i.e., LD, ADHD, or both). Addressing these questions will provide valuable information regarding whether or not perceptions of

stigma pose a significant risk to individuals with LD and ADHD.

**Research Objectives and Hypotheses**

The objectives of the present dissertation were two-fold. First, the relationship between reported severity of academic difficulties, reported age of the diagnosis, rated family support, SES and perceptions of stigma was investigated in a preliminary regression analysis. Second, the relationships between perceived stigma and both outcome variables (i.e., depressive symptoms, self-efficacy), as well as the mediating effect of disclosure on these relationships was explored. This methodology is consistent with previous work in the area testing the conceptual model of stigma theory with individuals with epilepsy (Westbrook, Bauman, & Shinnar, 1992) but has been adapted to students with LD and ADHD in university. This model includes tests of five direct relationships between two variables (i.e., perceived stigma related to disclosure, depression, and self-efficacy; disclosure related to self-efficacy and depression), and two tests of indirect relationships between two variables related to one another by a mediating variable (i.e., disclosure management). A mediating variable is defined as a variable that conveys the effect of one antecedent variable onto a consequent variable, and is pictorially situated between two variables (Hatcher, 1994). Specifically, there are two questions of interest:

(1) What is the relationship between perceived stigma and age at time of diagnosis, ratings of family support, ratings of academic difficulty and SES? *Given a lack of comparison literature, no hypothesis is put forth for this objective.*

(2) What are the relationships between perceived stigma and the outcome variables of depression and self-efficacy? Are these relationships mediated by disclosure?

*Consistent with stigma theory, it is expected that perceived stigma will be significantly associated with higher ratings of depressive symptoms and lower ratings of self-efficacy. Further, it is expected that disclosure will mediate this relationship, indicating that individuals who disclose at a higher frequency also experience higher levels of self-efficacy and lower levels of depression. This will partially mediate the direct effects of perceived stigma on the outcome variables.*

# Chapter 2. Research Design and Methodology

## Method

### Participants

Participants included 212 young adults with LD and ADHD (126 females, 86 males) from a total of 22 participating universities across Canada (see Table 1 for a list of participating universities and provincial location). Individuals completed a series of demographic questions reporting their gender, age, type of diagnosis (i.e., LD, ADHD, or both), age at time of diagnosis, faculty, and parental income and level of education (see Table 2 for participant demographic data). Individuals who reported having received a diagnosis of LD, ADHD, or both were included in the present study. Given this inclusion criterion, the sample is heterogeneous with regards to areas of difficulty experienced by these individuals. Given that the primary goal of the present project is to explore perceived stigma and its effects among individuals who report being labeled as having an LD, ADHD, or both, all individuals labeled with a diagnosis were included. Theoretically, these individuals would be equally prone to perceiving stigma despite the severity of their actual difficulties, given that stigma is defined as the perceived association between one's disability status and negative stereotypes (Blaine, 2000; Goffman, 1963; Link & Phelan, 2001). Further, researchers have found that despite differences in underlying etiologies and symptoms, individuals with ADHD and LD share a number of academic and behavioural difficulties resulting in a high proportion of overlap of these disabilities and dual diagnosis as high as 70% in children with LD (Mayes & Calhoun, 2006; Mayes, Calhoun, & Crowell, 2000). Due to this overlap in functional ability in university, for the present dissertation individuals with ADHD and

LD will be included.

Out of a total of 212 participants from over 8 different faculties, 109 students reported being identified with an LD, 32 with ADHD, and 71 with both an LD and ADHD. Participants ranged in age from 18 through 59 years of age ($M$ = 25.43 years, SD = 7.80 years). Age at time of diagnosis was also reported and ranged in age from 4 years through to 58 years ($M$ = 16.53 years, SD = 9.01).

Table 1

*List of Participating Universities and Province*

| Province | University | Population of students with LD/ADHD |
|---|---|---|
| New Brunswick | University of Fredericton | NA |
| Nova Scotia | Mount Allison University | 49 |
| | Nova Scotia College of Art and Design University | 50 |
| | Saint Mary's University | NA |
| Ontario | Carleton University | 491 |
| | University of Toronto | 722 |
| | Queens University | 212 |
| | Nipissing University | 23 |
| | University of Ottawa | 271 |
| | McMaster University | NA |
| Alberta | Alberta College of Art and Design | 88 |
| | University of Calgary | 316 |
| | University of Alberta | 350 |
| | University of Lethbridge | 71 |
| | Olds College | NA |
| | Medicine Hat College | NA |
| | North Island College | 49 |
| British Columbia | Simon Fraser University | 180 |
| Manitoba | University of Manitoba | 101 |
| Quebec | Concordia University | 289 |
| | McGill University | 294 |
| Saskatchewan | University of Saskatchewan | 142 |

*Note.* Total number of students registered with LD or ADHD as reported by OSD Director. NA = not available; not all university OSD Directors were able to provide the number of students registered.

Table 2

*Demographic Information for Participants (n = 212)*

| Variables | n (%) |
|---|---|
| Male | 86 (40.56%) |
| Female | 126 (59.43%) |
| Disability group | |
| LD only | 109 (51.42%) |
| ADHD only | 32 (15.09%) |
| LD and ADHD | 71 (33.49%) |
| Mother highest education | |
| High school or less | 58 (27.36%) |
| College | 53 (25.00%) |
| Undergraduate university | 69 (32.54%) |
| Graduate university | 32 (15.09%) |
| No response | 0 |
| Father highest education | |
| High school or less | 53 (25.005%) |
| College | 50 (23.54%) |
| Undergraduate university | 57 (26.88%) |
| Graduate university | 50 (23.54%) |
| No response | 2 (0.94%) |
| Parental income bracket | |
| 0 - $20,000 / year | 21 (9.91%) |
| $20,000 - $50,000 / year | 43 (20.28%) |
| $50, 000 - $80,000 / year | 61 (28.77%) |
| $80,000 / year and more | 81 (38.21%) |
| No Response | 6 (2.83%) |
| Faculty | |
| Arts | 87 (41.04%) |
| Sciences | 31 (14.62%) |
| Education | 29 (13.67%) |
| Continuing Education | 6 (2.83%) |
| Engineering | 12 (5.67%) |
| Law | 3 (1.41%) |
| Management | 10 (4.72%) |
| Medicine | 3 (1.41%) |
| Other | 31 (14.62%) |

**Procedure**

Data collection for this project was two-pronged. The first prong of data collection was completed with students registered for support services for students with disabilities at their university. A detailed information letter was sent to the director of support services at their local office for students with disabilities (OSD) explaining the objectives of the project and the procedure for participation (see Appendix A). Directors were asked to forward an information letter via email to all students registered for services for students with disabilities who have been identified specifically as having an LD, ADHD, or both (see Appendix B). In the event that directors did not have an exclusive e-mail list of students with LD and ADHD, directors were asked to forward the information letter via email to all students registered for services for students with disabilities regardless of their disability. Although contacting all students registered for services meant students with disabilities other than LD and ADHD were contacted, the information letter clarified that the project only pertained to students with LD and ADHD. Further, any student without a diagnosis of LD or ADHD who began the questionnaire was asked to identify whether or not they had a prior diagnosis of LD or ADHD. If not, the questionnaire ended and their data were not used.

The information letter forwarded to students from the director described the objectives of the project, participant rights, confidentiality and instructions on how to participate and provide informed consent. When students received the information letter by e-mail from their OSD director, after reading the information letter, they could either participate by clicking on a hyperlink that directed them to our online questionnaire, or ignore the e-mail invitation.

Invitations to participate were forwarded to the directors of disability services at all English speaking universities across Canada, for a total of 90 universities. Of these 90 invitations, 22 were accepted, representing a participation rate of 24.44%. Reasons cited by OSD directors for lack of participation including: lack of time on the OSD director's behalf to coordinate the project, lack of a follow-up person for mental health services required by the Research Ethics Board in the event of a high depression score, or participation in other research studies and not wanting to send too many requests simultaneously to students. Each university OSD director who did participate was asked to report approximately how many students with LD and/or ADHD were registered at their institution during the year that information about the project was sent to students; however, 5 of the participating 22 OSD directors did not provide this information. The grand total of all students with LD/ADHD who were sent the information across the 17 universities who did provide this information is approximately 4,126 students. Of this total, 361 students accessed the survey online (participation rate of 8.75%) and 181 completed the survey to its entirety (participation rate of 4.39%).

The second prong of data collection included participants with LD and ADHD who had not registered for disability support services at McGill University. This group was included to explore differences between students who had not sought out services. For this portion of the data collection, professors teaching first year courses at McGill University were contacted and asked if the research team could attend their class to distribute a brief screening questionnaire that is completed in approximately 5 minutes (Appendix C). Upon consent of the professor and the selection of an appropriate date and time, the research team attended the classroom to distribute the consent form (Appendix

D) and a brief screening questionnaire (Appendix E) to all students. Students were informed of the objectives of the project, their rights as a participant, and the confidential nature of all data collected. The screening questionnaire asked students to rank their difficulty with a number of academic skills (e.g., reading, math, organization) and describe their experiences in university. Within these questions, they were to identify whether or not they had previously received a diagnosis of LD or ADHD. Because students completed the screening questionnaire in a large classroom setting, the LD/ADHD diagnosis questions were embedded within many other questions related to university experiences in order to prevent students from answering dishonestly for fear that their neighbors may see their responses. At the end of this brief questionnaire students were informed of the opportunity to complete a follow-up project and, if interested in doing so, were asked to provide their e-mail address for further contact. Following the completion of the screening questionnaire, all participants received a debriefing form that included information about the project and contact information for the research team (Appendix F). Participants who reported having a diagnosis of LD or ADHD, and who agreed to follow-up by providing their contact information, were then sent by email an information letter detailing the objectives of the project and requesting their participation in the full online questionnaire (Appendix G). A hyperlink was provided and any interested students completed the survey online.

For this portion of the data collection, a total 17 professors were invited to participate and 15 agreed (88.24% participation rate). From all 15 classes visited, there was a final total of 1,415 students who attended class on the day of the presentation by the researchers. Of this total number of students, 1,217 completed the screening

questionnaire (86.00% participation rate), and 62 reported having a diagnosis of LD or ADHD (5.09% of the total student population sampled). All 62 students were invited to complete the follow-up online survey, which was completed in its entirety by 31 students (50% participation rate).

To summarize, all students received information about our project via email from their university support services for students with disabilities (prong 1, $n = 181$) or after having completed our brief classroom screening questionnaire, reporting an LD or ADHD diagnosis and agreeing to follow-up (prong 2, $n = 31$). The online questionnaire was hosted using online Survey Software ZapSurvey.com. All information collected was kept anonymous and confidential, and was safeguarded online with a password-protected account that is further protected with firewall and intrusion prevention technology. The data was exported into an Excel spreadsheet with participant numbers, no identifying information was reported. Zap Survey is a private American company that guarantees anonymity and confidentiality of any data collected by its users. For added security, SSL encrypting was added to the data, an option that ensures anonymity of the data in the event that computer usage is being monitored in any way, such as if a student completes the questionnaire on a public computer. Encrypting the data made it unusable by any data monitoring computer program, and encrypting is a strategy often used in online banking and online transactions with reputable companies to ensure confidentiality. Finally, given that participants completing the measures may have significant reading difficulty, all measures were written at a grade five-six reading level. Some measures were already written at such a level and those that were not were adapted wherever possible.

The questionnaire took approximately 25-35 minutes to complete. Students first

completed a consent form (Appendix H). At the completion of the survey all participants received contact information for the primary researcher and supervisor so all questions could be directed to the researcher (Appendix I). In addition, national website resources related to LD/ADHD were provided. OSD directors were informed that if students posed questions directly to them, they could simply refer the questions to the primary researcher by e-mail or telephone. Upon completion of the study, all directors received a general report of the data. No individuals were identified in this report; only group results were shared.

In order to safeguard the well being of participants, all OSD directors were asked to provide a contact person for mental health support and follow-up. If any participant contacted the researcher for reasons of personal distress caused by the questions posed in this study or for any other reason they were referred directly to the pre-established contact person for mental health services at their university (Appendix J). As well, the data from ZapSurvey.com was monitored on a daily basis, and all depression scores were calculated within 24 hours of a participant completing the survey. Any participant who scored in the moderate or severe range of depressive symptoms (i.e., a raw score on the Beck Depression Inventory of 19 or over) was automatically sent referral information and a pre-established contact person to provide mental health support services at their university. Of the total sample of 212 participants, 149 (70.30%) were in the mild or minimal range of depressive symptoms (raw score of 0 through 19) and therefore, were not provided with follow-up information for mental health services. In addition, 44 participants (20.76%) reported depressive symptoms in the moderate range (raw score of 19 through 29) and 19 (8.97%) reported depressive symptoms in the severe range (raw

score of 29 or higher). All 63 participants in the moderate and severe range were provided with a follow-up e-mail with the pre-established contact person for mental health services within 24 hours of completing the survey.

**Measures**

***Screening questionnaire***. All participants who participate in Prong 2 of data collection completed a brief screening questionnaire in their classroom. They were asked to rate their academic difficulty in different areas, as well as complete basic demographic questions (i.e., age, gender, faculty, parental income and education levels) and identify whether or not they had ever been diagnosed with an LD or ADHD. The screening questionnaire can be found in Appendix E.

***Background information***. Upon beginning the online questionnaire, all participants were asked to identify what type of disability they had, as well as the age at the time of diagnosis of their disability. Additionally, they were asked to rate various areas of academic skills in terms of level of difficulty on a scale of 1-7, where 1 indicates "no difficulty," and 7 indicates "extreme difficulty". They answered demographic questions (i.e., age, gender, faculty, parental income and level of education). Students also provided ratings of family support. Specifically, they rated how supported they felt by their family on a Likert scale, in terms of their general well-being and also specifically with their academic difficulties related to their disability. The background questions can be found in Appendix K.

***Perceived stigma***. Self-perceptions of stigma were assessed using a modified version of a questionnaire originally used by Varma and Wiener (2007). This questionnaire includes several questions that tap perceived stigma by parents, peers, and

professors on a 7-point scale. A fourth subscale that was not included in the original questionnaire and tapped perceptions of stigma among romantic partners was added using the same general format as questions in the other subscales. This questionnaire was originally designed to assess perceptions of stigma among adolescents with ADHD. However, with the permission of the authors the questions were adapted to reflect the perceptions of stigma among adults with LD and ADHD in a university setting. Internal consistency for each of the three original subscales (i.e., parents, peers, teachers) was established using Cronbach's Alpha as .77, .74 and .72, respectively. Responses can be used to calculate a Total Stigmatization score, and items on this subscale had an internal consistency of .78. The questions included in this questionnaire reflect the participants' perceptions of stigma related to their difficulties. The questionnaire can be found in Appendix L.

***Disclosure management***. Disclosure management was measured using a series of questions designed to tap disclosure in different situations and with different individuals. Students rated how often they told various other people about their disability on a scale where 0 indicates "never" and 4 indicates "almost always." Next, students rated how much detail they provided when telling others about their disability on a scale where 0 indicates "no information" and 3 indicates "full and complete detail about my disability." These questions were adapted from Jourard's Self-Disclosure Questionnaire (1971), which asks individuals to rate their level of detail of disclosure of a number of different sensitive topics (e.g., finances, sex life) with different individuals. The total of the ratings of disclosure were summed in order to calculate a total disclosure score that was used in the analyses. All disclosure management questions can be found in Appendix M.

***Depressive symptomatology***. Depressive symptomatology was assessed using the Beck Depression Inventory – Second Edition (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II is a 21 item self-report inventory of depressive symptomatology that focuses on the identification of depressive symptoms. Symptoms that are rated within this questionnaire fall into two subscales, the first reflecting the affective components of depression (e.g., hopelessness, irritability, guilt) and the second reflecting the somatic effects of depression (e.g., fatigue, weight loss, lack of interest in sex). Each item was rated on four points that represent increasingly severe depressive symptoms, and are scored on a scale of 0 through 3. This allowed for a calculation of a total raw score between the range of 0 through 63. The BDI-II is a well-established measure with excellent psychometric properties (Beck, Steer, & Brown, 1996). Questions on the BDI-II are written at a fifth-sixth grade reading level. Concurrent validity has been established with the Hamilton Depression Rating Scale (Pearson's r = .71; Beck & Steer, 1991). The BDI-II has excellent one-week test-retest reliability (Pearson's r = .93) and internal consistency (Coefficient Alpha = .91; Beck, Steer, & Brown, 1996). Note that for ethical reasons the question relating to suicidal ideation was removed.

***Self-Efficacy***. Self-efficacy was assessed using the Sense of Mastery scale from the Resiliency Scale for Adolescents (Prince-Embury, 2006). This self-report questionnaire includes 20 items ordered on a 5-point Likert scale. The Sense of Mastery scale was designed as a stand-alone subscale that measures difference aspects of experienced mastery which comprise three subscales: (a) optimism and expectations of positive outcomes, (b) self-efficacy, task persistence and perseverance, and (c) adaptability and flexibility when problem solving. Across the three subscales, there are slight differences

in test-retest reliability, with Optimism (Pearson's r = .81) and Self-Efficacy (Pearson's r = .90) slightly higher than Adaptability (Pearson's r = .61; Prince-Embury, 2006). The Sense of Mastery scale yields a global Mastery score that has good internal consistency (Alpha's coefficient = .93) and test-retest reliability (Pearson's r = .91; Prince-Embury, 2006). Although this measure was originally normed on a sample of individuals ranging from 8 through 18 years, it is currently being piloted among young adults age 18 through 25 and preliminary results reported by the author, Sandra Prince-Embury, have shown that the constructs are robust across age bands (Sandra Prince-Embury, personal communication, August 21st, 2009).

## Chapter 3. Analyses and Results

The objectives of the study were twofold. The first objective was to explore different demographic variables (i.e., reported severity of academic difficulties, age at time of diagnosis, ratings of family support, parental income, and gender) as predictors of perceptions of stigma. The second objective was to examine the direct effects of perceptions of stigma on self-efficacy and depression, and to explore whether disclosure to other individuals about one's disability partially mediated these relationships.

For the preliminary regression analyses for the first objective, a total of 13 out of 212 participants had missing data for the variables and thus, the analysis was completed with 199 participants. Out of a total of 361 individuals who accessed the survey, 215 completed it entirely; including all the four variables required for the mediation regression analyses. However, 3 participants presented as outliers during the linear regression analyses and as such, were excluded from the database as outliers. Specifically, studentized residuals for these three participants were greater than 2.5 and Cook's Distance was calculated as being greater than 1, both indications that these data points were significantly unusual from the distribution (Tabachnick & Fidell, 2007). Upon close examination of the data, one participant had comments incongruous with their responses on the Likert scale and thus, it is believed they did not correctly complete the Likert scale. The other two participants responded persistently with the same response to each item. All three are considered to have errors in data entry and thus, were dropped from analyses.

### Disability Group Differences on Measures

Because of the inclusion of individuals from three different groupings according to

diagnosis (i.e., LD group, ADHD group, and LD/ADHD group), a preliminary multivariate analysis of variance (MANOVA) was conducted to explore group differences on the means of the independent, mediator and dependent variables. However, results of the MANOVA indicated that none of the group differences on any variable was significant. The means of each group and the total sample on the four variables of interest are presented in Table 3.

Table 3

*Means (Standard Deviations) of Perceived Stigma, Disclosure, Depression, Self-Efficacy Measures by Disability Group*

| | LD Group ($n$ = 109) | ADHD Group ($n$ = 32) | LD/ADHD Group ($n$ = 71) | Total Sample ($n$ = 212) |
|---|---|---|---|---|
| Perceived Stigma | 38.75 (16.01) | 40.25 (13.74) | 43.25 (16.79) | 40.49 (16.05) |
| Disclosure | 61.44 (15.64) | 64.84 (16.58) | 61.24 (14.05) | 61.89 (15.25) |
| Depression | 13.50 (10.11) | 15.03 (7.88) | 17.08 (11.91) | 14.93 (10.54) |
| Self-Efficacy | 71.79 (13.53) | 71.44 (10.14) | 68.28 (14.39) | 70.56 (13.33) |

*Note.* Mean scores are presented for the four measures administered: Modified Perceived Stigma Questionnaire, Modified Disclosure Questionnaire, BDI and RSA.

**Exploring Predictors of Perceived Stigma**

Linear regression was used to investigate the relationship between several possible predictor variables (reported severity of academic difficulties, age at time of diagnosis, ratings of family support, parental income, gender) and the dependent variable of perceptions of stigma. This type of analysis allowed the researcher to understand the relationship between predictor variables and perceived stigma (Stevens, 2002). More specifically, a regression analysis allowed for an investigation of how much the dependent variable (perceived stigma) was changed as the independent variables were varied while holding the other variables constant (Stevens, 2002). Given that, to the author's knowledge, no literature is available to predict the relationship between the independent variables and perceptions of stigma, the analysis was exploratory in nature. As such, Leech, Barrett, and Morgan (2005) recommend exploring the independent variables using the simultaneous regression method, where all variables are on equal footing. This method is typically used where no a priori hypotheses are put forth and the regression is carried out with a reasonably small set of predictors. Therefore, the analysis examined how well one can predict perceptions of stigma from the variables of gender, age at time of diagnosis, total self-reported academic difficulty, total self-reported family support and family income. Note that out of the total sample of 212 participants, 13 participants opted not to respond to certain questions regarding the predictor variables. As such, the total sample size included in this regression analysis was 199 participants.

Results of the regression analysis indicated that the independent variables significantly predicted perceptions of stigma, $F(5, 193) = 8.55$, $p < 0.00$. The adjusted R square value was 0.16, indicating that 16.00% of the total variance of perceptions of

stigma was predicted by the five independent variables of gender, age at time of diagnosis, reported academic difficulty, reported family support, and parental income level. According to Cohen (1988) this is considered a medium effect size.

By investigating the regression coefficients and partial correlations, it is possible to ascertain the variance accounted for by each predictor variable. The square of the partial correlation indicates the total variance accounted for uniquely by the predictor variables. Of the five entered predictor variables, the three that contributed the most to the dependent variable were, in order of largest to smallest contribution, self-reported academic difficulty (8.64% of total variance), self-reported family support (6.1% of total variance) and gender (3.8% of total variance). The variables of age at time of diagnosis and parental income were not significant, and combined accounted for less than 2% of the total variance. For more details, please see Table 4.

Table 4

*Summary of Regression Analysis for Perceptions of Stigma (n = 199)*

| Variable | M | SD | B | SEB | β | pr |
|---|---|---|---|---|---|---|
| Difficulty | 44.82 | 14.00 | .33 | .08 | .28* | .28 |
| Family Support | 48.23 | 15.42 | -.25 | .07 | -.24** | -.23 |
| Age at time of diagnosis | 16.56 | 9.06 | -.20 | .12 | -.11 | .11 |
| Gender | NA | NA | -5.97 | 2.16 | -.18** | -.18 |
| Parental Income | NA | NA | -.76 | 1.08 | -.05 | -.05 |

*Note.* Adjusted $R^2$ = .16 ($p < .00$)
* $p < .00$ level; ** $p < .01$ level

**Perceptions of Stigma, Disclosure, Depression and Self-Efficacy: Mediation Analyses**

The next objective was to explore the direct effect of perceptions of stigma on depression and self-efficacy; further, the partial mediation effect of disclosure was also explored. The path analytic approach was used to test mediation effects using multiple regression analyses. For a summary of the results described below, please see Table 5. When exploring mediation researchers typically follow the steps outlined by Baron and Kenny (1986). This procedure entails the completion of four steps to explore mediation, including: (1) testing the direct effects of the independent variable on the dependent variables, (2) testing the direct effect of the independent variable on the mediator variable, (3) testing the direct effect of the mediator variable on the dependent variables, and (4) testing the direct effects of the independent variable on the dependent variables while holding constant the mediator variable. In the fourth step, if the effect of the independent variable is completely eliminated when holding constant the mediator variable, then the mediator variable is considered to fully mediate the relationship between the independent and dependent variables. In contrast, if the relationship is reduced but not fully accounted for, then the mediator variable is considered to partially mediate the relationship between the independent and dependent variables. The model being tested is represented in Figure 1.

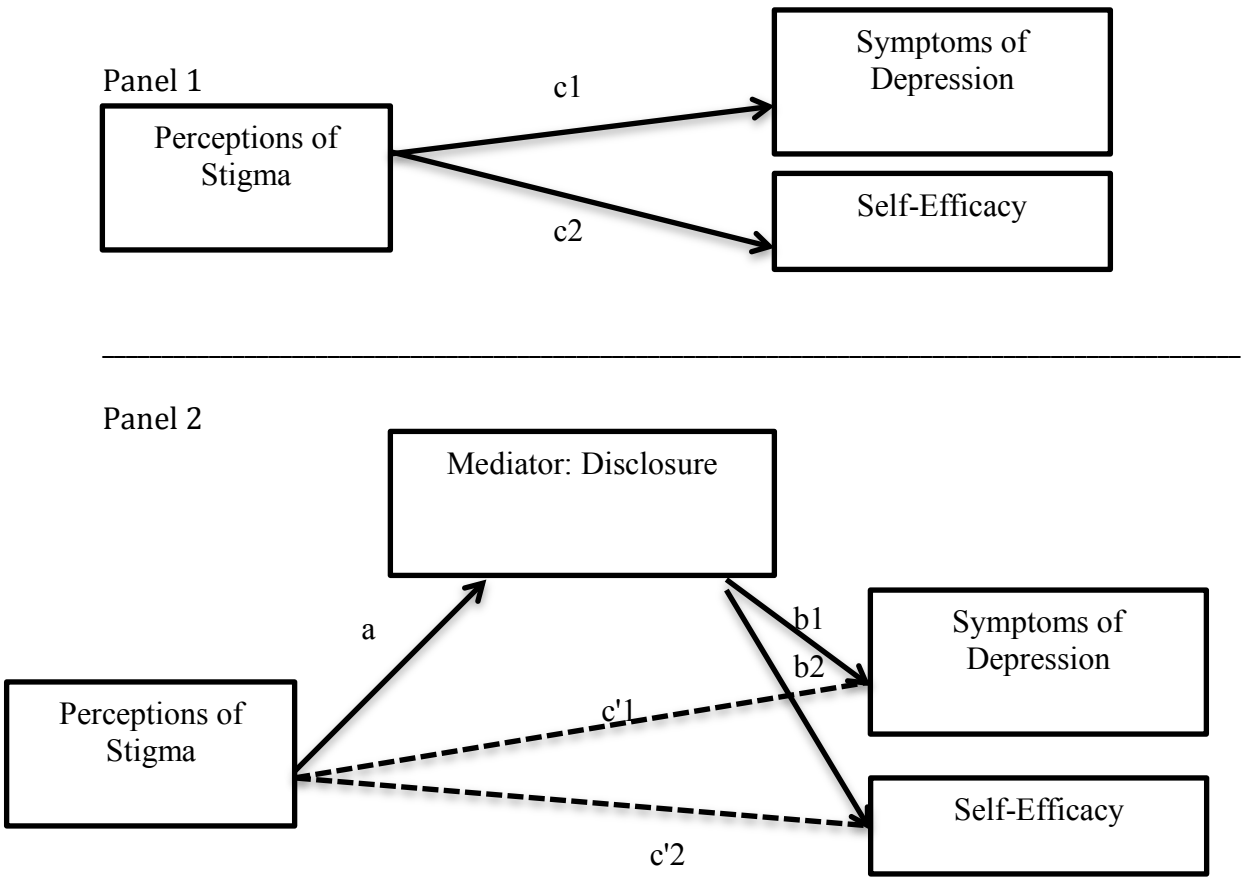


*Figure 1*. Mediation model tested. The first panel shows the direct effect (described as Step 1 in text; illustrated by path *c* in figure). The second panel shows Step 2 (path *a*), Step 3 (paths *b)* and Step 4 (paths *c'*) in the mediation analysis. The coefficients and significance level of each path are presented in Table 5.

In addition to exploring these four steps, researchers typically recommend further analyses to verify whether the partial or complete mediation is significant, such as the bootstrapping method (e.g., Hayes, 2009; Kenny, 2008; Preacher & Hayes, 2004). Bootstrapping is recommended in order to correct for the assumption that the correlation coefficients calculated when performing multiple linear regressions are normally distributed. Therefore all regressions performed were completed with bootstrapping, wherein a sample of 50 data points was chosen at random 1000 times and the normal distribution of correlation coefficients was calculated and verified for normality. Only bootstrapped coefficients will be reported for the final results due to their more conservative and rigorous nature (Hayes, 2009). The bootstrapping procedure also yields a 95% confidence interval for the coefficients, which can be used to determine whether partial mediation is significant.

***Step 1***. Following Baron and Kenny's steps, in Step 1, the effect of perceptions of stigma on the first outcome variable (symptoms of depression), while controlling for the dependent variable of self-efficacy which shares covariance with depression was completed. Results showed that perceived stigma was not a significant predictor of symptoms of depression. Second, the effect of perceived stigma on the second outcome variable (self-efficacy) while controlling for the dependent variable of depression was completed. Results showed that perceived stigma was a significant predictor of self-efficacy. To summarize, perceived stigma significantly predicted self-efficacy but not depression.

***Step 2***. The next step was to assess the effect of perceived stigma on the mediator variable of disclosure, while holding the dependent variables (depression and self-

efficacy) constant. This step showed that perceived stigma did significantly predict depression, but not self-efficacy.

***Step 3***. In Step 3, the direct effect of the mediator (disclosure) on the two outcome variables (depression and self-efficacy) was explored. Results showed that disclosure significantly predicted self-efficacy when holding depression constant. In contrast, disclosure did not significantly predict depression, while holding self-efficacy constant.

***Step 4.*** Finally, the combined effect of the mediator (disclosure) and perceived stigma on the dependent variables (depression and self-efficacy) was explored. In the first regression analysis with depression as the dependent variable, perceptions of stigma did not significantly predict depression while holding constant disclosure and self-efficacy. In contrast, perceptions of stigma did significantly predict self-efficacy while controlling for disclosure and depression. This showed that the independent variable of perceptions of stigma and the mediator variable disclosure each remained significant when both were included in the model (see Figure 1, paths b and c'). Thus, disclosure did not fully mediate the relationship between perceptions of stigma and self-efficacy. However, the coefficient of perceived stigma predicting self-efficacy found in Step 1 (-.2) was shown to decrease in Step 4 (-.17) when disclosure was entered in as a predictor variable, indicating a partial mediation effect of disclosure. Further, the 95% confidence interval of this relationship did not include zero, which indicates that the partial mediation of disclosure in this equation is significant (Preacher & Hayes, 2008). A summary of the mediation analyses is available in the Table 5.

Table 5

*Mediation Analyses to Test the Proposed Causal Mechanism*

| | B | *SE* | 95%CI | PC |
|---|---|---|---|---|
| Step 1 Effect of Stigma on Outcome Variables | | | | |
| *Stigma Vs Self-Efficacy; DV: Depression* | .08 | .05 | -.3 - 1.9 | c1 |
| *Stigma Vs Depression; DV: Self-Efficacy* | -.20*** | .06 | -.33 - .08 | c2 |
| Step 2 Effect of Stigma on Mediator (Disclosure) | | | | |
| *Stigma Vs Self-Efficacy; DV: Disclosure* | -.07 | .07 | -.19 - .07 | a |
| *Stigma Vs Depression; DV: Disclosure* | -.14** | .07 | -.27 - -.02 | |
| Step 3 Effect of Mediator (Disclosure) on Outcome Variables | | | | |
| *Disclosure Vs Self-Efficacy; DV: Depression* | -.00 | .04 | -.08 - .08 | b1 |
| *Disclosure Vs Depression; DV: Self-Efficacy* | .24*** | .05 | .14 - .34 | b2 |
| Step 4 Effect of Stigma on Outcome Variables | | | | |
| *Stigma Vs Disclosure+Self-Efficacy; DV: Depression* | .08 | .06 | -.3 - .18 | c'1 |
| *Stigma Vs Disclosure+Depression; DV: Self-Efficacy* | -.17** | .06 | -.29 – -.5 | c'2 |

*Note*. PC, path coefficient relevant to the mediation analysis in Figure 1 in Steps 1 through 4. **p<0.01 level; *** p<.001 level.

To summarize, the first objective entailed an exploratory regression analysis to determine the relationship between perceived stigma and the predictor variables of age at time of diagnosis, ratings of family support, gender, ratings of academic difficulty and SES. The model significantly predicted the dependent variable. The variables of family support, academic difficulty and gender were significant predictor variables, while age at time of diagnosis and SES accounted for a smaller, non-significant portion of the variance. In exploring the second objective multiple linear regression analyses were conducted to explore the relationship between perceived stigma, depression, self-efficacy and disclosure. Consistent with stigma theory, it was found that perceived stigma was associated with significantly lower ratings of self-efficacy, and this relationship was partially mediated by disclosure. However, the results were not supported for depression.

# Chapter 4. Discussion and Implications

The present study sought to explore the existence and impact of perceived stigma among the university population of students with LD and/or ADHD. Using the risk and resilience framework, perceived stigma was considered as a possible risk factor for this population, by virtue of its negative effects on known protective variables. The summary and unique contribution of this chapter highlights how predictor variables of perceived stigma were delineated and further, that perceived stigma directly acted upon known protective variables. Limitations and implications for researchers and professionals are discussed.

## Summary and Unique Contribution

The rise in students with LD and ADHD attending university brings forth important questions for researchers, school psychologists, educators and service providers. Using the risk and resilience framework, the factors associated with successful academic achievement in students with LD and ADHD were explored. University can be a challenging environment for most students, and perhaps even more so for students with an LD or ADHD who experience persistent academic difficulties (e.g., Wong, 2003). Understanding what factors promote success among students with LD and ADHD can inform all involved professionals by targeting environmental or individual factors that are empirically proven to be related to success and well-being.

Within the framework of risk and resilience (e.g., Wong, 2003), the present dissertation sought to explore the impact of perceived stigma as a potential risk factor for university students with LD and ADHD. The prolific literature on the effects of stigma on groups of individuals associated with negative stereotypes has documented negative

effects on emotional well-being, willingness to seek support services, and disclosure of one's disability (Hayward & Bright, 1997; Link & Phelan, 2001; Major & O'Brien, 2005; Pescosolido, Martin, Lang, & Olafsdottir, 2008). Thus, the present study sought to directly measure the impact of perceived stigma among university students with LD and ADHD, in order to explore whether this is a significant risk factor that is worthy of attention and intervention at the individual level.

Further, although there is a vast literature on perceived stigma among adults, there are no studies to the author's knowledge examining variables that predict perceptions of stigma. Thus, the present study also sought to expand upon the existing literature in exploring predictive factors that could be associated with perceptions of stigma. This included the age at time of diagnosis, also a measure of how long the individual had been identified with a particular diagnosis, levels of self-reported academic difficulty, which relates to how well the individual can conceal their disability as well as the magnitude of risk throughout one's lifespan, rated family support, which relates to emotional and social development, and finally, socio-economic status, a variable with implications for access to resources and support.

Broadly speaking, the results of the present dissertation were consistent with stigma theory, and yielded many informative insights regarding the complex interactions between perceived stigma, predictor variables, disclosure, depressive symptoms and self-efficacy. First, in exploring the variables associated with perceptions of stigma, the variables of gender, reported ratings of family support and ratings of academic difficulty were significantly associated with the magnitude of perceived stigma. Males, individuals with reported lower levels of family support and higher levels of academic difficulty

were more likely to perceive stigma. Individuals with these backgrounds are therefore at greater risk for stigma and its effects.

***Gender and perceived stigma.*** In regards to gender, this is the first study to demonstrate that males with LD and/or ADHD are more likely to report perceiving stigma than females. The males in this study reported significantly higher levels of shame, embarrassment and judgment regarding their disabilities. This finding is consistent with other research documenting the fact that males are more likely to perceive stigma surrounding various mental health issues, which in turn contributes to avoidance of mental health services (e.g., Rochlen, Blazina, & Raghunathan, 2002; Rochlen & Hoyer, 2005; Rochlen, Mohr, & Hargrove, 1999; Vogel, Wade, & Haake, 2006). Further, there is evidence that this gender difference begins in early adolescence, and is related to differences in knowledge about and exposure to mental health issues, differences in parental reactions to males and females with disabilities or mental health disorders, and openness to one's emotions (e.g., Chandra & Minkovitz, 2006; Komiya, Good, & Sherrod, 2000). Taken together, the finding that males with LD, ADHD or both in the present study did not differ significantly in terms of perceived stigma and also were much more likely than females to perceive stigma fits within the existing literature on stigma gender differences related to mental health issues. It also expands this literature to show that this gender difference found among individuals with mental health issues can also apply to individuals with disabilities such as LD and ADHD, despite the heterogeneous nature of the samples described here. As such, males are significantly at risk for perceived stigma and its negative effects, including avoidance of services. Educators, professionals, families and individuals would benefit from understanding how gender is a

risk factor for perceived stigma.

***Family support and perceived stigma.*** Next, reported levels of family support were also found to be inversely and significantly associated with levels of perceived stigma. Students who reported high levels of family support were much less likely to perceive stigma. This is consistent with research in the field showing that families of individuals with different mental health disorders also perceive stigma, which can negatively affect family interactions with the diagnosed individual (Corrigan & Miller, 2004; Green, 2003; Green, Davis, Karshmer, Marsh, & Straight, 2005; Phelan, Bromet, & Link, 1998). Related to this, researchers have found that the support of individuals in one's immediate environment, such as family and friends, are critical in determining levels of perceived stigma (Leaf, Bruce, & Tischler, 1986; Vogel, Wade, Wester, Larson, & Hackler, 2007; Vogel, Wester, & Larson, 2007). In fact, they have also argued that perceived stigma is actually a combination of both observed public stigma and stigma from close individuals. Thus, the finding that university students with LD and ADHD who reported lower levels of family support also were more likely to perceive stigma is consistent with this existing literature, and advances it by highlighting the need for students with LD and ADHD in university to be supported by their close friends and family.

***Academic difficulty and perceived stigma.*** Finally, the third variable that was significantly associated with perceptions of stigma was reported level of academic difficulty. Proponents of stigma theory have put forth that perceptions of stigma are related to severity and visibility of one's difficulties (e.g., Jones et al., 1984; Link & Phelan, 2001). In line with this, researchers have found that mental health disorders,

which are more severe and difficult to conceal, are associated with higher levels of perceived stigma (Beatty & Kirby, 2006; Cacciapaglia, Beauchamp, & Howells, 2004; Pachankis, 2007; Quinn, 2006; Stutterheim et al., 2011). This relationship was consistent with existing literature and confirmed among university students with LD and ADHD. Specifically, students who reported greater difficulties with reading, writing, math and time management skills, which are likely more difficult to conceal from peers, professors, or other individuals were also significantly more likely to perceive stigma. Thus, though it may seem that individuals with LD and/or ADHD have "invisible" symptoms, they are still likely to perceive stigma and this is associated with the degree of difficulty experienced.

***Summary of first objective.*** In summary, the findings of the first analysis were that the variables of gender, family support and ratings of academic difficulty were all significantly associated with perceived stigma. Variables that were tested but not found to be significantly associated with perceived stigma included both age at time of diagnosis and socio-economic status. Thus, among the present sample, although there was variability among the sample in terms of age at time of diagnosis and SES, these variables did not hold predictive power. This is of interest to the field as it highlights that stigma is a powerful intrapersonal risk factor despite how long a person has been diagnosed. To this author's knowledge, no studies exist which explore age at time of diagnosis in relation to perceptions of stigma. Further, this perception may not be attenuated given previous access to resources or socio-economic advantage. The latter finding is particularly of interest given that researchers have found that SES can be a powerful risk factor for stigma among university samples, in that students from low SES

backgrounds may feel stigmatized compared to their peers specifically due to their financial status (Johnson, Richeson, & Finkel, 2011). Their findings were that individuals in the university setting felt categorically divided between low, middle and high SES groups and felt stigmatized, or associated with negative stereotypes, if they belonged to the low SES group. Although SES was found to significantly predict perceived stigma in a university sample, it was not found to significantly contribute to perceptions of stigma among students with LD and ADHD.

***Exploring the direct effects of stigma.*** In exploring the second objective, this dissertation sought to directly examine the effects of perceived stigma on disclosure of one's disability, self-efficacy and depression symptoms. First, it is noteworthy that students with LD, ADHD or both LD/ADHD did not differ substantially in their perceptions of stigma and thus, were grouped together in the analyses. In fact, many researchers have argued that these groups are highly overlapping, given similarities in terms of functional difficulties with academic skills and executive function deficits, despite differences in etiology (Denckla, 1996; Frazier, Youngstrom, Glutting, & Watkins, 2007; Mayes et al., 2000; Seidman, 2006; Wolf, 2001). Extending this line of thinking, these groups may be more similar than dissimilar, and functional similarities could account for the similar ratings of perceived stigma related to academic skills in both groups. Further, proponents of stigma theory have argued that stigma is related to one's label. Given this, individuals with LD, ADHD, or both would be equally susceptible to perceived stigma and its effects.

The findings of the second objective support stigma theory and the hypothesis that perceived stigma has significant implications for disclosure and self-efficacy.

Specifically, even when controlling for depressive symptoms, the findings that perceived stigma was significantly associated with self-efficacy and disclosure ratings were robust; further, disclosure partially mediated that relationship by demonstrating a reduced effect of perceived stigma with disclosure entered in the model as a predictive variable. Thus, the findings support the fact that perceived stigma is a significant risk factor for university students with LD and ADHD, by virtue of its association with reduced self-efficacy. Researchers have previously found that self-efficacy is an important protective factor related to disclosure (Gerber et al., 1992; Goldberg et al., 2003; Madaus, 2002; Madaus et al., 2002; Raskind et al., 1999; Werner, 1993; Werner & Smith, 2001). As well, self-efficacy is associated with academic achievement and persistence through one's academic career (Caprara, Vecchione, Alessandri, Gerbino, & Barbaranelli, 2011; Carroll et al., 2009; Diseth, 2011). Thus, the relationship between stigma and self-efficacy is significant, in that it impacts a known protective factor.

In addition, the relationship between perceived stigma and self-efficacy was partially mediated by disclosure to one's peers, professors, family, and other individuals. It is possible that reduced disclosure can limit beneficial social support (Cosden et al., 2002; Cosden & McNamara, 1997; Demaray & Elliott, 2001; Goldberg et al., 2003; Raskind et al., 1999; Rothman & Cosden, 1995; Werner, 1993; Werner & Smith, 2001; Wiener, 2002). Further, individuals may find themselves in a vicious cycle where they perceive stigma towards their disability, limit disclosure, and continue to hold negative views about themselves. In contrast to this, researchers have suggested that positive, meaningful and sustained contact with individuals with disabilities is likely to produce a change in perceived stigma (Couture & Penn, 2003, 2006; Estroff, Penn, & Toporek,

2004) and thus, perceived stigma works against this possibility by limiting how often individuals disclose and thus maintaining a negative self-view.

It is noteworthy that the present model was strongly supported for self-efficacy and not for depression. In fact, the linear regression analyses conducted with the variable of depression as a dependent variable were significant, but when the variable of self-efficacy was entered as a control variable, they became non-significant. Although a great portion of the sample (38.90%) reported moderate to severe levels of depressive symptoms, the relationship between stigma and depressive symptoms disappeared when levels of self-efficacy were controlled. Researchers argue that depression is influenced by a number of other variables not accounted for in the present model. First, although our understanding of the biological mechanisms of depression is developing, researchers have shown depression is a highly heritable disorder that implicates monoamine brain systems, neuropeptide functioning and other hormonal variables (e.g., Beck & Alford, 2008). In addition to genetic and biological vulnerability, persistent and pervasive levels of hopelessness, helplessness and negative attributions regarding the self are also believed to play a causal role in the development and maintenance of depression (Beck & Alford, 2008; Kendler & Gardner, 2010; Sullivan, Neale, & Kendler, 2000). In fact, proponents of stigma theory do argue that stigma contributes to feelings of sadness, but not to a depressive disorder, per se. Taken together, the present findings support that symptoms of depression must be considered simultaneously or in context with levels of self-efficacy and stigma, but stigma alone does not predict depressive symptoms at the clinical level.

**Implications for School Psychologists**

School Psychologists working with students with LD and ADHD in all academic settings (elementary, secondary and post-secondary settings) will benefit from an understanding of the results. Given that perceived stigma has been identified in the present study as being a significant risk factor for students with LD and ADHD in university, it follows that this could be an area of intervention throughout the lifespan. Further, this highlights the need for interventions that specifically target perceptions of stigma, as well as self-efficacy and disclosure, in working with these individuals. This could take a number of forms. Researchers have argued that adults with LD and ADHD would benefit from learning self-advocacy skills, including being able to succinctly define their difficulties to others, and request needed accommodations (Gerber & Price, 2012). However, perceived stigma and low self-efficacy may need to be incorporated into a clinician's intervention in order to ensure students feel comfortable with self-advocacy skills. Specifically, cognitive-behavioural techniques can be used to help individuals recognize their own perceptions of stigma or possible negative stereotypes and counteract these negative thoughts with positive, helpful coping statements (e.g., Sheldon, 2011). This could also include developing a plan in response to negative "what-if" situations and exploring alternative evidence, which could ultimately diffuse any secondary anxiety, shame or sadness. In line with this, many researchers in the area of stigma have argued that individuals often become more relaxed in their perceptions of stigma when conceptualizing their difficulties on a continuum of strengths and difficulties, rather than a strict demarcation between individuals with and without disabilities (Gerber & Price, 2012; Hayward & Bright, 1997). These techniques would be highly relevant for school psychologists to help students cope with their label/diagnosis and reduce negative

perceptions about oneself, as well as negative expectations that may be attributed to other people. Further, in conjunction with self-advocacy skills, the individual may be better equipped to proactively seek resources they require.

Moreover, researchers have argued that fostering and promoting acceptance of one's difficulties and reframing their diagnosis positively can be helpful (Corrigan, Kerr, & Knudsen, 2005; Gerber, Reiff, & Ginsberg, 1996; Hayward & Bright, 1997; Madaus, Gerber, & Price, 2008), and this could extend to perceived stigma. Specifically, it may be useful to explore with the individual that negative perceptions exist in the world, and it can be impossible to rid the world of unjust biases, which exist towards many groups unfairly. Further, exploring how these negative stereotypes can be overcome to some extent with positive interactions and education could be useful. Therefore, another part of the intervention could be working towards exploring what, if any, negative stereotypes have been accepted or noticed by the individual, accepting that negative stereotypes as a reality in the world and providing strategies to cope and reframe one's own negative self-perceptions. In fact, researchers have found that while there is a moderate effect of education in reducing negative stereotypes about groups, the strongest effects are found when individuals from the stigmatized group are in direct contact with others (Couture & Penn, 2003, 2006; Estroff et al., 2004). Their results support that contact that is sustained, positive and meaningful will often reduce negative stereotypes including that the individuals are directly responsible for their difficulties, or are disabled in ways unrelated to their actual disability. Thus, teaching individuals with LD and ADHD about this research and encouraging them to take proactive steps towards disclosure as a means of reducing stigma in other people could, in turn, empower them to reduce their own

perceived stigma and enhance self-efficacy by providing control over the situation. With that in mind, it may be critical to teach individuals with LD and ADHD that while it may appear counter-intuitive, avoiding disclosure may actually create more problems in the long run. In line with this, researchers have found that proactive disclosure among individuals with LD in the work place is found to be associated with more positive outcomes, while reactive disclosure, which occurs after a problem has happened, tends to viewed negatively and can foster adversarial relationships (Gerber & Price, 2012). Thus, it is critical that individuals with LD and ADHD be encouraged to proactively disclose their difficulties in an active way with which they are comfortable. In combination with cognitive behavioural techniques that help them cope with their own negative perceptions, this strategy could be very successful for individuals. Finally, as it relates to disclosure, increased disclosure may also result in an increased network of social support, including connecting with other individuals with various disabilities who may also fear disclosure.

Finally, the important insights gleaned from this project regarding the factors that are associated with perceived stigma also have important implications for school psychologists. Specifically, as previously mentioned males are at greater risk for perceived stigma and thus, may be at greater risk for lower levels of self-efficacy and disclosure. As well, they may be more reluctant to receive support services. This is important to note, as an individual's refusal or disinterest in services could be motivated by strong perceptions of stigma and as such, must be explored in order to ensure the individual has access to needed services. Second, the importance of family support was highlighted in the present study, such that individuals with lower levels of family support

also had much higher levels of perceived stigma. For the school psychologist, this highlights the need to provide family interventions as well as individual interventions. In some cases, the family may also require support understanding the impact of their own actions, coping with or accepting the individual's difficulties and associated negative stereotypes. As well, families who are well versed in the cognitive and behavioural strategies reviewed here can help reinforce and support their children throughout their lives in situations where access to a school psychologist or other supports is unavailable.

**Limitations**

The present study is not without its limitations. First, it is important to note that the results only serve to describe significant associations between perceptions of stigma, disclosure and self-efficacy. As such, it is impossible to say with certainty if perceptions of stigma develop prior to and thus serve a causal role in reduced disclosure and self-efficacy, or whether reduced disclosure and lower levels of self-efficacy are present prior to the development of perceptions of stigma. Similarly, the causality direction of the relationships found between disclosure and self-efficacy share the same limitation. In order to assess the causal relationship among these variables, a longitudinal design that measures all three variables over time would be required. Though this information is not discernible from the present report or data, the findings indicate significant associations between perceived stigma, disclosure and self-efficacy, and thus, the interventions proposed and implications are still relevant.

A second limitation of the study is that individuals were required to self-identify a previous diagnosis. Individuals were not asked to provide documentation or proof of their disability and further, it is likely that individuals were identified using a variety of

methods or assessment criteria. Therefore, the sample is likely heterogeneous with regard to the nature of difficulties and their severity. Despite this, researchers have long argued that stigma is, in essence, the association between a label and negative stereotypes. Consistent with this, the present study did find significantly high ratings of stigma that were normally distributed and further, found to be similar across disability groups. However, the sample participants may not meet the stringent criteria for a diagnosis of LD and/or ADHD that is accepted by researchers and professionals in the field and thus, should be considered in interpreting the results.

A third limitation to be considered is that individuals were asked to self-report their level of academic difficulty. There is much literature available to suggest that individuals with disabilities such as LD and ADHD are not always accurate in their self-report of academic skills (e.g., Diener & Milich, 1997; Heath & Glen, 2005; Heath, Roberts, & Toste, 2009; Heath, Roberts, & Toste, 2011; Ohan & Johnston, 2002). Thus, it is unclear whether individuals who reported lower levels of academic difficulty would in fact have significant differences in terms of functional skills on objective measures of performance. However, the results do indicate that individuals who believe they are lower in academic skills and have significant difficulties in this area also report significantly higher levels of perceived stigma.

Finally, a fourth limitation of the study is the low response rate by participating universities, as well as students themselves. For the former, the universities often did not participate due to time constraints or other research studies occurring at the same time. For student participation rates, it is unclear why students did not participate, though it is possible this was due to the method of soliciting students via electronic mail, which

reduced a sense of connection to the research, as well as a lack of time, interest, or incentive offered. Low response rates limit the generalizability of the data and could give rise to sampling bias. Recently, researchers have challenged this assumption, showing little difference between low and high response rates in the analysis of data sets (Curtin, Presser, & Singer, 2000; Keeter, Kennedy, Dimock, Best, & Craighill, 2006) though it is still important to consider as a possible limitation. Despite this, there was significant variability on all variables of interest.

**Directions for Future Research**

Given the vast nature of the literature on stigma and the burgeoning exploration of perceived stigma among individuals with LD/ADHD, there are numerous possible directions for future research. As previously mentioned, a longitudinal design that could further explore the development of perceptions of stigma over time would be useful in delineating its developmental trajectory and causal effects on variables such as disclosure, self-efficacy, and other outcome measures. This could be of particular interest throughout adolescence, when individuals are increasingly aware of their difficulties and at the same time fitting into one's peer group is of such significant importance.

A second area that has relatively little empirical investigation is the negative perceptions held by peers and romantic partners towards young adults with LD and ADHD in the university setting. Although professors and service providers have generally demonstrated acceptance towards their students with disabilities, participants in the present study reported significant negative experiences where they felt judged by friends or romantic partners or discriminated against by other students. Due to the high emphasis on academic achievement in university, it is possible that students feel more

antagonistic towards individuals with disabilities, who may be perceived as getting an unfair advantage. As well, students with ADHD in particular reported a significant negative impact of their disability on romantic relationships. It would be useful to further explore how individuals with LD and ADHD experience stigma in other domains of their lives, particularly given the evidence presented that individuals in the person's immediate social environment contribute directly to perceived stigma.

Finally, it could be useful to further explore whether or not individuals truly differ on objective measures of performance and how their actual levels of academic difficulty relate to measures of perceived stigma. It is currently unclear whether students have higher levels of academic difficulty which impacts the degree to which they perceive stigma; or, whether perceptions of stigma also impact an individual's self-report of their academic difficulties. Compared perceptions, objective measures of performance and perceptions of stigma would help clarify this, particularly given the significant association between reported difficulty and perceived stigma.

**Summary**

Self-efficacy and access to needed academic supports have previously been shown to be associated with the success of students with LD and ADHD in the classroom setting. In university and throughout their lives, these students are also at-risk for developing perceptions of stigma. The current dissertation sought to confirm that perceived stigma is a risk factor that requires intervention for individuals with LD and ADHD. Findings support the fact that stigma is a risk factor that is strongly associated with reduced self-efficacy, and that this relationship is partially mediated by reduced disclosure of one's disability. In addition, an exploration of predictive variables

highlighted the importance of gender, severity of academic difficulties and family support in relation to perceived stigma. These findings support stigma theory and offer new evidence that stigma theory exists specifically among university students with LD and ADHD.

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**Appendix A**
Invitation to OSD Directors

To Whom it May Concern:

I am writing to you in regards to my doctoral dissertation project, supervised by Dr. Nancy Heath in the Faculty of Education at McGill University, entitled "University Experiences of Individuals with Diverse Academic Strengths and Difficulties." The goal of this project is to investigate the current situation for university students with Learning Disabilities (LD) and Attention Deficit Hyperactivity Disorder (ADHD) in universities across Canada. With the results of the study, we hope to better understand the personal experiences and challenges faced by students with LD and ADHD. This understanding could help develop our knowledge of how to support students with LD and ADHD throughout their academic studies. **We are hoping to solicit your help in distributing information about our project to students with LD and ADHD at your institution.**

If you agree, you would simply distribute a detailed information letter by e-mail to all students registered at your student services office with a diagnosis of LD, ADHD, or both. The letter we are asking you to distribute will include information about the project, instructions for participation, as well as a link to an online questionnaire. Once receiving this form, students should have everything they need if they choose to participate. Our contact information is also included, and any questions about the project can be addressed directly to us. If students contact you about the project, you can refer them directly to us for information or responses to their questions.

We are asking for your help distributing this information because we cannot access students' contact information directly ourselves. Your help in this endeavor will enable us to complete this important project. At the completion of the project, a summary report will be provided to all participations and also to you. This report will include group information only, no individual results or identifying information will be reported.

We greatly appreciate your consideration of this request. If you have any questions or concerns, please feel free to contact the project coordinator, Elizabeth Roberts, at the coordinates below (or by replying to this e-mail). Otherwise, we hope you can reply to this request by phone or by e-mail to let us know of your decision to continue with the project.

We thank you in advance for your collaboration,

Kind regards,

Elizabeth Roberts, M.A.
Project Coordinator
(514) 398-1232
elizabeth.roberts@mcgill.ca

Nancy Heath, Ph.D.
McGill University, Faculty of Education
(514) 398-3439
nancy.heath@mcgill.ca

**Appendix B**
Student Information from OSD Director

Dear Student,

I am writing to you in regards to your participation in my doctoral dissertation project, which is supervised by Dr. Nancy Heath in the Faculty of Education, Department of Educational and Counselling Psychology. We are inviting you to participate in a study entitled "University Experiences of Individuals with Diverse Academic Strengths and Difficulties".

Participation in this study would involve completing an online survey that will take approximately 25 minutes of your time, and will include questions related to your academic strengths and areas of difficulty, and your personal feelings and opinions about your university experience. This information will help develop an understanding of how individuals are coping with their academic work in university, and where challenges can occur.

The data from this project will be used for a doctoral dissertation, and will also be reported back to university student services in order to help improve services offered to students who experience difficulty. At the completion of the project, a summary report will be provided to all participations and also to McGill student services. This report will include group information only, no individual results or identifying information will be reported.

All information you provide will be kept strictly confidential and will only be accessible only to the primary researcher and project supervisor.

If you have any questions about the project, please feel free to contact the project coordinator, Elizabeth Roberts, directly via e-mail (Elizabeth.roberts@mail.mcgill.ca) or phone at (514) 398-1232.

If you are ready to participate and complete the survey, please click on the following link: http://www.zapsurvey.com/survey

Thank you for your time and consideration!

Elizabeth Roberts, M.A., Project Coordinator
Faculty of Education - McGill University
3700 McTavish St. (B114)
Montreal QC H3A 1Y2
Tel. (514) 398-1232
Elizabeth.Roberts@mcgill.ca

**Appendix C**
Classroom Script

**SPEECH FOR UNIVERSITY CLASSES**

(Questionnaires being completed during class time)

Hello. My name is _____ and I'm here to talk to you about a doctoral dissertation research project being supervised by Dr. Nancy Heath, in the Faculty of Education. We are conducting a study on the academic strengths and difficulties of diverse university students and we would very much appreciate your participation. It will help us to better understand how university students cope with their academic work and areas of difficulty. Our questionnaire takes about 10 minutes to complete and it is completely confidential.

***Other lab members can begin to pass out the questionnaires while delivering speech.***

All information you provide will be kept strictly confidential and only the primary researcher and project supervisor will have access to this information. Your participation is completely optional and it will have no impact on your grade in this class. You may choose not to answer a question if it makes you uncomfortable and you are also free to withdraw from the study at any time, without penalty or prejudice. If you have questions raise your hand and a research assistant will come to you. You must be at least 18 years old to participate. The research assistants will give every student a copy of the questionnaire. If you choose not to participate, just hold on to it until everyone is done and then hand it in blank.

The first page is a consent form. Please read it carefully and sign it if you agree to participate. Then, please fill out the questionnaire silently and turn it over when you have finished. It is very important that there be no talking and that the questions be filled out individually. Otherwise our results will not be valid.

Thank you very much for your time. We invite you to participate in further studies that our lab is conducting, with the possibility of being paid. If you are interested please provide your contact information on the page following the questionnaire. Your contact information will be stored separately from your questionnaire. When you hand back your papers, you will be given a sheet with our contact information. Please feel free to contact us at the e-mail we've provided if you have any questions about our studies. Thanks again.

***Research assistants can be waiting to collect the questionnaires and pass out the additional information sheet.***

**Appendix D**

Classroom Consent Form

## *University Experiences of Individuals with Diverse Academic Strengths and Difficulties*

CONSENT TO PARTICIPATE IN RESEARCH

This is to state that I agree to participate in the doctoral dissertation project investigating experiences of individuals with diverse academic strengths and weaknesses, conducted by Elizabeth Roberts and supervised by Dr. Nancy Heath at McGill University. The purpose of this project is to understand how individuals with academic difficulties are doing and identify challenges they may experience.

All of the information provided will be kept strictly confidential and will be accessible only to the primary researcher and project supervisor. I fully understand that participation in this research is voluntary and will not, in any way, affect my grades or evaluation of my course work.

Participation in this study will help to develop our knowledge about how individuals with diverse strengths and areas of difficulty cope with their academic work in university.

The questionnaire I am being asked to complete will take approximately ten minutes. While there are no risks involved in participation in this research project, some participants might be sensitive to, or uncomfortable with, some of the questions. Should this issue arise, I am free to withdraw from the study, at any time, without penalty or prejudice. I am also free to not answer any item that makes me uncomfortable.

I understand the purpose of the study and know the risks, benefits, and inconveniences that are involved in this research project. I realize that the data will be used for the above stated research purposes. A list of resources for individuals with LD and ADHD will be provided at the end of the study.

If you have any questions or concerns about your rights as a research subject in this study, please contact the McGill Research Ethics Officer at 514-398-6831.

***I have read the above and I understand all of the conditions. I freely consent and voluntarily agree to participate in this study.***

Name (please print):

_____

Signature: _____ Date: _____

Elizabeth Roberts, M.A.
Project Coordinator

Nancy Heath, Ph.D.
McGill University, Faculty of Education

(514) 398-1232
elizabeth.roberts@mcgill.ca

(514) 398-3439
nancy.heath@mcgill.ca

Are you interested in participating in further research related to academic strengths and areas of difficulty experienced by university students?

Participants will be asked to complete a complete a 25-minute online survey. Like the study you've just participated in, all the information provided in the second study is confidential.

**If you are interested, please provide us with your contact information.**

You are under no obligation to participate.

**Name:** _____

E-mail: _____

Phone # (required): _____

**Appendix E**

Classroom Screening Questionnaire

| | | | | | | |
|---|---|---|---|---|---|---|
| ***For each question below, please circle or write in your response. If you have already completed this questionnaire, please do not continue.*** | | | | | | |
| **What is your gender?** | Male<br>Female | | | **How old are you?** | | |
| **What is your Faculty?** | Arts | Education | Continuing Education | Sciences | Engineering | Law |
| | Dentistry | Management | Medicine | Other (please specify): | | |
| **What country were you born?** | | | **What is your mother tongue?** | | | |

Please rate **how much difficulty** you experience with the following academic skills:

| Area | 0<br>No difficulty | 1<br>Slight difficulty | 2 | 3 | 4<br>Moderate difficulty | 5 | 6 | 7<br>Extreme difficulty |
|---|---|---|---|---|---|---|---|---|
| Reading words | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Understanding written texts | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Grammar when writing | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Organization and construction of written work | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Spelling | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Paying attention in class | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Mathematical calculations | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Mathematical problem-solving | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Concentrating | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Memorizing | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Time management | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

***Have you ever been identified as having any of the following? Please circle yes or no.***

| Learning disability | Public speaking award | Excellent sports ability | Attention Deficit Hyperactivity Disorder | Medical health problem | Scholarship recipient | Giftedness |
|---|---|---|---|---|---|---|
| Yes/No | Yes/No | Yes/No | Yes/No | Yes/No | Yes/No | Yes/No |

On a scale of 1 to 10, where 1 is no stress at all and 10 is the most stressed you have ever felt, circle how stressed have you been over the two weeks: 1 2 3 4 5 6 7 8 9 10

**Appendix F**

Classroom Debriefing Form

# Thank you for participating in our survey on the university experiences of diverse students!

The objective of the present study is to develop an understanding of how individuals with diverse areas of strength and difficulty cope with their academic work in university. We know that some university students may experience academic difficulties in some areas and may be very strong in other areas. This can lead to specific experiences in university, and some students with difficulties may feel that they are less welcome in the university atmosphere. We hope to understand more about how individuals who experience academic difficulties are doing and where challenges occur in order to provide effective support for these students.

Information gathered in this research study will provide the basis of a doctoral dissertation.

If you are interested in knowing more about this study please contact the project coordinator, Elizabeth Roberts, at (514) 398-1232 or Elizabeth.Roberts@mail.mcgill.ca. You may also contact the project supervisor, Nancy Heath, at nancy.heath@mcgill.ca.

## Additional Resources

**McGill Services** **Mental Health Support**

McGill Mental Health Service: 398-6019
McGill Office for Students with Disabilities: 398-6009

**Appendix G**
Invitation for Follow-Up

Dear Student,

I am writing to you in regards to your participation in my doctoral dissertation project, which is supervised by Dr. Nancy Heath in the Faculty of Education, Department of Educational and Counselling Psychology. Earlier this year, you participated in a study entitled "University Experiences of Individuals with Diverse Academic Strengths and Difficulties". This involved completing a short questionnaire in one of your classes here at McGill. You indicated that you were interested in follow-up studies. We appreciate your participation and willingness to participate in future studies.

With this e-mail, we are inviting you to participate in a follow-up study to the project "University Experiences of Individuals with Diverse Academic Strengths and Difficulties".

Participation in this study would involve completing an online survey that will take approximately 25 minutes of your time, and will include questions related to your academic strengths and areas of difficulty, and your personal feelings and opinions about your university experience. This information will help develop an understanding of how individuals are coping with their academic work in university, and where challenges can occur.

The data from this project will be used for a doctoral dissertation, and will also be reported back to university student services in order to help improve services offered to students who experience difficulty. At the completion of the project, a summary report will be provided to all participations and also to McGill student services. This report will include group information only, no individual results or identifying information will be reported.

All information you provide will be kept strictly confidential and will only be accessible to the primary researcher and project supervisor.

If you have any questions about the project, please feel free to contact the project coordinator, Elizabeth Roberts, directly via e-mail (Elizabeth.roberts@mail.mcgill.ca) or phone at (514) 398-1232.

If you are ready to participate and complete the survey, please click on the following link: http://www.zapsurvey.com/survey

Thank you for your time and consideration!

Elizabeth Roberts, M.A., Project Coordinator
Faculty of Education - McGill University
Tel. (514) 398-1232
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**Appendix H**
Online Consent Form

## *University Experiences of Individuals with Diverse Academic Strengths and Difficulties*

This is to state that I agree to participate in the doctoral dissertation project investigating experiences of individuals with diverse academic strengths and weaknesses, conducted by Elizabeth Roberts and supervised by Dr. Nancy Heath at McGill University. The purpose of this project is to understand how individuals with academic difficulties are doing and identify challenges they may experience.

All of the information provided will be kept strictly confidential and will be accessible only to the primary researcher and project supervisor. I fully understand that participation in this research is voluntary and will not, in any way, affect my grades at McGill University or any student services I have received.

Participation in this study will help to develop our knowledge about how individuals with diverse strengths and areas of difficulty cope with their academic work in university.

The questionnaire I am being asked to complete will take approximately ten minutes. While there are no risks involved in participation in this research project, some participants might be sensitive to, or uncomfortable with, some of the questions. Should this issue arise, I am free to withdraw from the study, at any time, without penalty or prejudice. I am also free to not answer any item that makes me uncomfortable.

I understand the purpose of the study and know the risks, benefits, and inconveniences that are involved in this research project. I realize that the data will be used for the above stated research purposes and that a general summary report will be sent to all participants as well as offices for student services at the completion of the project. A list of resources for individuals with LD and ADHD will be provided at the end of the study.

If you have any questions or concerns about your rights as a research subject in this study, please contact the McGill Research Ethics Officer at 514-398-6831.

***I have read the above and I understand all of the conditions. I freely consent and voluntarily agree to participate in this study.***

- Yes
- No

Name:
Email address:

Elizabeth Roberts, M.A.
Project Coordinator
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**Appendix I**
Online Debriefing Information

Dear participant,

Thank you for taking part in our survey. Your participation will help us better understand the experiences of university students with academic difficulties, such as students with Learning Disabilities (LD) or Attention Deficit Hyperactivity Disorder (ADHD). Research has shown students with LD and ADHD benefit from academic support services, as well as a sense of emotional well-being and social support. The purpose of this study that you completed is to better understand your personal opinions and experiences about your university environment, in order to understand how these experiences affect your emotional well-being and social support. The findings of this study will add to the growing knowledge we have about students with LD and ADHD such as yourself, and help practitioners and researchers more effectively support students with LD and ADHD throughout their university education.

Some of the items that you were asked to fill out deal with very personal and sensitive issues. For this reason, we are providing all of our participants with a list of resources for their own use. Although we do not endorse all of the information on these websites, we think they may be of interest to some of our participants. **Please make use of the resources below should you require any additional support. Do not hesitate to call the project coordinator if you have any questions or concerns.**

Thank you again for your participation,

Elizabeth Roberts, M.A.
Project Coordinator
(514) 398-1232
elizabeth.roberts@mcgill.ca

Nancy Heath, Ph.D.
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(514) 398-3439
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Participants are referred to:

National resource center on ADHD: http://www.help4adhd.org/
Children and Adults with ADHD: http://www.chadd.org/
Learning Disabilities Association of Canada: http://www.ldac-taac.ca/
Learning Disabilities Online: http://www.ldonline.org/

**Appendix J**

Online Debriefing Information – Clinical Range Depressive Symptoms

Dear participant,

Thank you for taking part in our survey. This study focuses on how diverse students cope with university. As you may recall, you completed a brief questionnaire during your classroom at McGill University. Students who indicated having significant difficulty in one or more academic areas, or alternatively who indicated having a Learning Disability, Attention Deficit Hyperactivity Disorder (ADHD), or both were invited to participate in the follow-up study. Your participation will help us better understand the experiences of university students with academic difficulties, or with LD, ADHD, or both. Research has shown students with LD and ADHD benefit from academic support services, as well as a sense of emotional well-being and social support. The purpose of this study that you completed is to better understand your personal opinions and experiences about your university environment, in order to understand how these experiences affect your emotional well-being and social support. The findings of this study will add to the growing knowledge we have about students such as yourself, and help practitioners and researchers more effectively support students throughout their university education.

We routinely check over people's scores on some of the key measures, and although these questionnaires do not yield definitive scores, your answers suggest that you are feeling pretty badly right now. We would like to inform you that mental health services office at your school would be able to provide support and set you up with someone to talk to you about how you are feeling. We have attached a letter that you can print and bring directly to your mental health services office; you can ask to speak with **__(Contact Name)___.** We will not contact the mental health services directly, it is up to you to pursue this additional support and we sincerely hope you will.

Some of the items that you were asked to fill out deal with very personal and sensitive issues. For this reason, we are providing all of our participants with a list of resources for their own use. Although we do not endorse all of the information on these websites, we think they may be of interest to some of our participants. **Please make use of the resources below should you require any additional support. Do not hesitate to call the project coordinator if you have any questions or concerns.**

Thank you again for your participation,

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Nancy Heath, Ph.D.
McGill University, Faculty of Education
(514) 398-3439
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Participants are referred to:
McGill Mental Health Service: 398-6019

McGill Nightline (6pm to 3am, daily): 398-6246
ADHD support groups in Quebec: http://www.caddac.ca/cms/page.php?90
Children and Adults with ADHD: http://www.chadd.org/
Learning Disabilities Association of Quebec:
http://www.aqeta.qc.ca/english/home/who.htm
Learning Disabilities Association of Canada: http://www.ldac-taac.ca/

**Appendix K**

Online Questionnaire: Background/Demographic Questions

| **Question** | **Possible Responses** |
|---|---|
| What is your gender? | Male<br>Female |
| What is your Faculty? | Arts<br>Sciences<br>Education<br>Continuing Education<br>Engineering<br>Law<br>Dentistry<br>Management<br>Medicine<br>Other (please specify): |
| What country were you born? | (Write in response) |
| What is your mother tongue? | (Write in response) |
| How old are you? | (Write in response) |
| Have you ever been identified as having a Learning Disability? | Yes<br>No<br>Not sure |
| If yes, at what age did you receive this diagnosis? | (Write in response) |
| Have you ever been identified as having ADHD? | Yes<br>No<br>Not sure |
| If yes, at what age did you receive this diagnosis? | (Write in response) |
| To summarize, I have been diagnosed with: | LD<br>ADHD<br>LD and ADHD<br>**None of the above (Survey ends)** |
| Did you receive services in Elementary School? If yes, please check all that apply. | Extra time for exams<br>Using a computer / word processor for exams<br>Using a computer to take notes in class<br>Attending a language center for general help in English or French<br>Tutoring<br>Study skills training<br>Reduced course load<br>Having access to texts in digital format for use with specialized software (e.g., Kurzweil, WYNN)<br>Having exam questions read to you |

| | |
|---|---|
| | Writing exams in a separate room<br>Modified exam formats (e.g., greater emphasis on spoken or written component)<br>Modified stage or internship environments<br>Other (please specify): |
| Did you receive services in High School? If yes, please check all that apply. | Extra time for exams<br>Using a computer / word processor for exams<br>Using a computer to take notes in class<br>Attending a language center for general help in English or French<br>Tutoring<br>Study skills training<br>Reduced course load<br>Having access to texts in digital format for use with specialized software (e.g., Kurzweil, WYNN)<br>Having exam questions read to you<br>Writing exams in a separate room<br>Modified exam formats (e.g., greater emphasis on spoken or written component)<br>Modified stage or internship environments<br>Other (please specify): |

Please rate **how much difficulty** you experience with the following academic skills:

| Area | 0<br>No difficulty | 1<br>Slight difficulty | 2 | 3 | 4<br>Moderate difficulty | 5 | 6 | 7<br>Extreme difficulty |
|---|---|---|---|---|---|---|---|---|
| Reading words | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Understanding written texts | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Grammar when writing | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Organization and construction of written work | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Spelling | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Paying attention in class | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Mathematical calculations | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Mathematical | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| problem-solving | | | | | | | | |
| Concentrating | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Memorizing | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Time management | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Please answer the following questions using the scale below.

| Very strongly disagree | Strongly disagree | Mildly disagree | Neutral | Mildly agree | Strongly agree | Very strongly agree |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| My family really tries to help me | | | | | | |
| I get the emotional help and support I need from my family | | | | | | |
| I can talk about my problems with my family | | | | | | |
| My family is willing to help me make decisions | | | | | | |

You indicated that you have either a Learning Disability, ADHD, or both. Please rate how supportive your family is regarding your disability:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Very strongly disagree | Strongly disagree | Mildly disagree | Neutral | Mildly agree | Strongly agree | Very strongly agree |
| My family would really try to help me with any issues related to my disability | | | | | | |
| I get the emotional help and support I need from my family regarding my disability | | | | | | |
| I can talk about my disability with my family | | | | | | |
| My family always tried to help me in the past when I encountered difficulties with my coursework | | | | | | |

| | |
|---|---|
| What is your mother's highest level of education: | No grade school completed<br>Grade school<br>High school degree<br>CEGEP or trade school degree<br>University degree |

| | |
|---|---|
| | Graduate school university degree |
| What is your father's highest level of education: | No grade school completed<br>Grade school<br>High school degree<br>CEGEP or trade school degree<br>University degree<br>Graduate school university degree |
| Do you currently have a mental health disorder? (E.g., anxiety, depression, bipolar disorder, etc.) | Yes<br>No |
| Have you received treatment for a mental health disorder in the past 5 years? | Yes<br>No |

**Appendix L**

Online Stigma Questionnaire: Academic Difficulty in University
Adapted from Varma, Wiener, and Muradian, 2007

You noted that you have been identified with a Learning Disability, or Attention Deficit Hyperactivity Disorder, or both.

Please answer the following questions using the rating scale below.

| **Item** | **Never 0** | **Rarely 1** | **Occasionally 2** | **Often 3** | **Very Often 4** | **Always 5** |
|---|---|---|---|---|---|---|
| Do you think your disability bothers your parents? | | | | | | |
| Do you think that your parents are uncomfortable when your disability shows in public? | | | | | | |
| Do you think your parents treat you differently from your brothers or sisters because of your disability? | | | | | | |
| Do you think your parents are disappointed because of your disability? | | | | | | |

Given an example of any of the above (how your parents treat you differently, are disappointed, or are uncomfortable because of your disability). If this does not apply to you, then skip this question.

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| **Item** | **Never 0** | **Rarely 1** | **Occasionally 2** | **Often 3** | **Very Often 4** | **Always 5** |
|---|---|---|---|---|---|---|
| Do you think your disability bothers your professors? | | | | | | |
| Do you think that your professors like you less than other students because of your disability? | | | | | | |
| Do you think that your professors treat you differently from other students | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| because of your disability? | | | | | | |
| Do you think your professors are disappointed because of your disability? | | | | | | |

Given an example of any of the above (how your professors treat you differently, are disappointed, or are uncomfortable because of your disability). If this does not apply to you, then skip this question.

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| **Item** | **Never 0** | **Rarely 1** | **Occasionally 2** | **Often 3** | **Very Often 4** | **Always 5** |
|---|---|---|---|---|---|---|
| Do you think your classmates are bothered by your disability? | | | | | | |
| Do you think your classmates are uncomfortable when your disability shows in public? | | | | | | |
| Do you think sometimes classmates don't like you because of your disability? | | | | | | |
| Do you think some classmates treat you differently from other students because of your disability? | | | | | | |

Given an example of any of the above (how your classmates treat you differently, are disappointed, or are uncomfortable because of your disability). If this does not apply to you, then skip this question.

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| **Item** | **Never 0** | **Rarely 1** | **Occasionally 2** | **Often 3** | **Very Often 4** | **Always 5** |
|---|---|---|---|---|---|---|
| Do you think your close friends are bothered by your disability? | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Do you think your close friends are uncomfortable when your disability shows in public? | | | | | | |
| Do you think sometimes close friends don't like you because of your disability? | | | | | | |
| Do you think some close friends treat you differently from other peers because of your disability? | | | | | | |

Given an example of any of the above (how your close friends treat you differently, are disappointed, or are uncomfortable because of your disability). If this does not apply to you, then skip this question.

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| **Item** | **Never 0** | **Rarely 1** | **Occasionally 2** | **Often 3** | **Very Often 4** | **Always 5** |
|---|---|---|---|---|---|---|
| Do you think potential romantic partners are bothered by your disability? | | | | | | |
| Do you think potential romantic partners are uncomfortable if your disability shows in public? | | | | | | |
| Do you think sometimes potential romantic partners don't like you because of your disability? | | | | | | |
| Do you think potential romantic partners treat you differently from other peers because of your disability? | | | | | | |

Given an example of any of the above (how your romantic partners treat you differently, are disappointed, or are uncomfortable because of your disability). If this does not apply to you, then skip this question.

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| Item | Never 0 | Rarely 1 | Occasionally 2 | Often 3 | Very Often 4 | Always 5 |
|---|---|---|---|---|---|---|
| Do you think your disability prevents you from obtaining your academic goals? | | | | | | |
| Are you sometimes embarrassed because of your disability? | | | | | | |

B) Give an example of how you feel embarrassed. If this does not apply to you, then skip this question.

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**Appendix M**

Online Disclosure Management Questionnaire – Adapted from Jourard's Self-Disclosure Questionnaire (1971)

Please tell us **how often** you tell people in your life about your disability.

| Person | Never | Rarely | Sometimes | Usually | Almost Always |
|---|---|---|---|---|---|
| Extended family members (cousins, aunts/uncles, grandparents) | | | | | |
| Closest friends | | | | | |
| Friends | | | | | |
| People in your class (not friends) | | | | | |
| Boyfriend/girlfriend | | | | | |
| Employer / boss at job | | | | | |
| Acquaintances | | | | | |
| Strangers you just met | | | | | |
| Coaches or other instructors | | | | | |
| Co-workers | | | | | |
| Professors | | | | | |

Please tell us **how much information** about your disability you would tell to the following people.

| Item | Nothing about my disability | Inaccurate information about my disability | General information about my disability | Full and complete detail about my disability |
|---|---|---|---|---|
| Best same-sex friend | | | | |
| Best opposite-sex friend | | | | |
| Classmates | | | | |
| Boyfriend/girlfriend | | | | |
| Professors | | | | |
| Staff at the office | | | | |

| | | | | |
|---|---|---|---|---|
| for students with disabilities at my university | | | | |
| Strangers | | | | |
| Extended family members (aunts/uncles, cousins, grandparents) | | | | |
| Professional counselor | | | | |
| Employer/boss at a job | | | | |
| Co-workers | | | | |
| Closest friends | | | | |
| Friends | | | | |