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**POSTSECONDARY STUDENTS WITH DISABILITIES:
PREDICTORS OF ADAPTATION TO COLLEGE**

A Dissertation in
Counselor Education

by

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ABSTRACT

This dissertation presents the findings of an on-line survey-based study designed to examine the predictors of adaptation to college for undergraduate students with disabilities. The survey was relayed to participants via the disability support services offices at 16 colleges or universities in the northeast and mid-west United States. The six week survey administration resulted in 145 usable surveys. This empirical study was designed to examine the relationships between the principle independent variables acceptance of disability and perceived stigma on a college campus on adaptation to college. In addition to the principal variables of research interest, a demographic questionnaire was included in the survey to explore participant characteristics and college-related information on adaptation to college. The on-line survey was comprised of four assessments, a demographic questionnaire, the Postsecondary Student Survey of Disability-Related Stigma (PSSDS), the Acceptance of Disability Scale-Revised (ADS-R), and the Student Adaptation to College Questionnaire (SACQ).

The results of a hierarchical multiple regression analysis revealed two statistically significant relationships. Among participants in the study pool, students with disabilities with higher GPAs had lower levels of adaptation to college and those with a higher level of acceptance of disability were more adapted to college. Lastly, the exploratory test of mediation revealed that the relationship between acceptance of disability and adaptation to college was significantly mediated by perception of stigma on a college campus. The implications for counseling and disability support services personnel training and practice are discussed, and recommendations are made for future research.

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CHAPTER I

INTRODUCTION

In 1959, only 20% of the American workforce required at least some college education to perform their jobs. In 2000, that statistic increased to 56% (Carnevale & Fry, 2000). As a consequence of this shift to a more knowledge-based economic landscape, the attainment of a college degree has become a critical component in career success and subsequent quality of life (Carnevale & Derochers, 2003). For youth who continue their education post-high school, post-secondary education has been associated with increased earnings and with the attainment of more meaningful employment (Aune & Kroger, 1997; Hitchens, Lizzo, Ristow, Horvath, Retish, & Tanners, 2001; Marcotte, Bailey, Borkoski, & Kienzel, 2005). This reality has resulted in a 26% increase in college enrollment of high school graduates over the past 45 years (U.S. Department of Education, 2006). Despite the importance of a college education and the subsequent increase in college participation, more than half of the college population leave school and never return. For many of these students the adjustment demands of college were beyond their ability to cope.

Adaptation to College

Adaptation to college life is difficult and complex; nearly one in four college students leave school before completing their second year and another 20% to 30% generally leave in subsequent years (Hamilton & Hamilton, 2006). The new college student encounters many stressors including homesickness, loss of friends, separation from family, loneliness, depression, sleep disturbance, anxiety, change in daily routine, increase in academic workload, and change in classroom setting to name a few (Brooks & Dubois, 1995; Paul & Brier, 2001). The stark statistics on college attrition have

prompted researchers to turn their attention to the subject of adaptation to college (Adams, 2007; Mooney, Sherman, & LoPesto, 1991). These investigations have established the multi-dimensionality of the adaptation process and specific psychological and emotional burdens, and the factors that affect coping acumen (Baker & Siryk, 1984; Mooney et al., 1991). Over the past 20 years researchers have found higher levels of adaptation among students with higher ACT scores, greater intellectual ability, better self-esteem, greater assertiveness, higher perceived social support, greater optimism, and a better sense of mastery (Aspinwall & Taylor, 1992; Brooks & Dubois, 1995; Felsten & Wilcox, 1992; Sternberg & Kaufman, 1998). Lower levels of adaptation have been associated with a greater number of stressful events and perceived distance from home (Brooks & Dubois, 1995; Mooney et al., 1991).

College Students with Disabilities and Adaptation to College

Given the many challenges inherent in the college adaptation process and the complexities of successful adjustment, it is easy to see how pre-existing vulnerability or disadvantage would further complicate this process. College students with disabilities possess just such vulnerabilities (deFur, Getzel, & Trossi, 1996). Like their peers without disabilities, students with disabilities are seeking a college education at increasing rates (Gilson, 1996, Stodden, Jones, & Chang, 2002; Wilson & Getzel, 2001; Wolanin & Steele, 2004). Among students with disabilities in high school who had transition plans, higher education was a goal for four out of five students (Cameto, Levine, & Wagner, 2004). In addition, The National Longitudinal Transition Study-2 (Newman, Wagner, Cameto, & Knotkey, 2009) found that within four years of leaving high school, 45% of youth with disabilities reported having continued on to post-secondary education.

Although statistics support the reality that all college students are at risk of dropping out, the presence of a disability increases these chances demonstrably (deFur et al., 1996).

From 1986 to 1994 there was hope students with disabilities were making strides as their degree attainment numbers increased from 14% to 16% (Harris & Associates, 1994). In 2000, just six years later however, this number had dropped to 12% (Harris & Associates, 2000). Circumstances germane to students with disabilities provide some explanation for the complexities with which they are confronted in postsecondary education. Beyond the challenges to all new college students, students with disabilities face a number of unique challenges including logistical, socio-environmental, and attitudinal barriers (Wolanin & Steele, 2004). Complicating these challenges is a significant shift from one set of laws that governs services in K-12 (Individuals with Disabilities Education Act) to another that pertains to postsecondary education (ADA; ADAA, section 504 of the Rehabilitation Act of 1973). This change in legal context (Madaus & Shaw, 2004), represents a discernable change in the types, frequency, and quality of services provided to students with disabilities (Stodden et al., 2002).

In high school, students with disabilities are assured disability related services by the Individuals with Disabilities Education Act (IDEA; Parker, Syzmanski, & Patterson, 2005). IDEA was written to ensure students in K-12th grade educational settings receive the best possible supports to ensure educational success. IDEA mandates schools not only support students with disabilities of whom the school is already aware, but also requires schools to seek out students with disabilities, ensuring identification and service provision. These support services are dictated by a formalized process that involves the identification of functional learning deficits and the assignment of a plan of remediation

of these learning needs (Parker et al., 2005). This process culminates in an Individualized Education Plan (IEP) that dictates the program of remediation and identifies any academic modifications needed to ensure educational success. In addition, transition goals and a plan for attaining post high school goals must be announced in the IEP. In postsecondary education the structural legal framework functions quite differently (Parker et al., 2005).

In college, students with disabilities leave the auspices of IDEA and its supportive timbre and move into an arena governed by Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA; Parker et al., 2005). Section 504 and the ADA differ significantly from IDEA in their scope as they are intended to provide only access rather than success (Americans with Disabilities Act, 1990; Rehabilitation Act of 1973). Services in college, therefore, are dispensed differently than the K-12 services students with disabilities were accustomed to in high school. Unlike secondary schools, colleges are not required to seek out and identify students with disabilities nor provide any services beyond those that would ensure equal access to the college experience. Indeed, the definition of “services” changes.

In high school, services that modify the manner in which students experience learning are known as “modifications” (Madaus & Shaw, 2004). These might include extra time on exams, a change in exam format, use of a scribe, use of a note taker in class, or enlargement of the text size of written materials. In higher education, disability services of the same stripe are called “accommodations” and are only meant to ensure access. Other ancillary services provided in secondary schooling that are not mandated in college include tutoring services, one-to-one academic skill building remediation, course

substitutions, lowering of academic standards, the development of an IEP, and the involvement of students and parent/guardians in educational planning (Wolanin & Steele, 2004). In addition, in high school nearly every school professional in contact with students with disabilities is required to take a vested interest in ensuring their success. In college, disability related services are provided almost exclusively by disability support services (DSS) personnel who are responsible for ensuring access and not necessarily student success (Wolanin & Steele, 2004).

These differences in service provision from high school to college demonstrate one aspect of the complexities students with disabilities encounter when they enter higher education. Utilizing disability services in college can be time consuming. This process involves meeting with the postsecondary disability support services representative and providing documentation of the disability and functional limitations associated with the disability. Depending upon the disability and associated needs, the logistics of accommodation provision can be cumbersome (Wolanin & Steele, 2004). In addition, these services may vary considerably in both quality and quantity from one institution to another (Stodden et al., 2002). Students with mobility disabilities often encounter greater demands on their time due to the delays inherent with getting to and from campus locations. Students with disabilities related to learning may encounter time drains due to a need for longer study sessions. Stodden et al. (2002) note, however, that the most influential barrier to students with disabilities is related to campus climate. They assert that the social environment on colleges is fraught with stereotypically negative attitudes about people with disabilities and their ability to be successful in higher education (Stodden et al., 2002). Despite all that is known about the experiences of students with

disabilities in postsecondary education, only a few studies provide information about this population as a whole and the variables that affect their adaptation to college (Adams, 2010; Sanders & Dubois, 1996).

Sanders and Dubois (1996) examined the socio-environmental variables related to adjustment of students with disabilities. They found that students who rated themselves higher in problem-solving skills and as having greater social support, reported fewer stressful events, and used more resources had higher levels of adaptation to college. In addition, students with disabilities with higher levels of adaptation also reported greater satisfaction with the disability access office on campus (Sanders & Dubois, 1996). For students with physical disabilities, students who noted greater attachment to friends and parents had more effective adaptation to college (Leatherman-Sommers, 1999).

Saracoglu, Minden, and Wilchesky (1989) found that students with learning disabilities with lower levels of adjustment to college reported they had a greater need for counseling services and academic support.

Adams and Proctor (2010) found that students without disabilities, when compared to their peers with disabilities, had significantly higher levels of overall adaptation to college, better social adjustment, higher levels of institutional attachment, and higher grade point averages. Students with disabilities, however, had a more stable attributional style for both positive and negative events. Essentially, they assigned a more realistic and accurate cause to events in their lives. Adams and Proctor also found higher levels of self-reported visibility of disability to others and better self-advocacy skills were significant positive predictors of adaptation to college. Given this finding, it is likely students with disabilities encounter difficulties, specifically due to the experience of

living with a disability, that complicate adaptation to college. Two aspects of living with a disability found to be salient factors in many life outcomes for people with disabilities are stigma and acceptance of disability (Dembo, Leviton, & Wright, 1956; Wright, 1983).

Stigma

The term stigma comes from the Greek word for “mark” or “tattoo.” This “mark” brings shame or discredit to the bearer (Adler & Clark, 2003). In the social sciences, a stigma is any characteristic perceived by the dominant culture as deviating from the majority (Dovidio, Major, & Crocker, 2000). This distinction is regarded as characteristically negative. Stigmatized individuals are judged and assessed according to assumptions about their stigma (Goffman, 1963). The perceiver, therefore, makes assumptions about the stigmatized “other” based on this single characteristic. This preconception has the affect of devaluing the entire person based on assumptions about the stigma (Dovidio et al., 2000). As a result, stigmatized individuals are subjected to stereotypical assumptions about their personal attributes, abilities, intelligence, and moral character. As a result, they are often treated with suspicion, disgust, disdain, or complete dismissal and avoidance (Dovidio et al., 2000; Goffman, 1963; Susman, 2000).

Traditionally, there are a number of “differences” identified by sociologists as stigmatized; these include race, religion, sexual orientation, and disability (Goffman, 1963). In his seminal work on stigma, Goffman (1963) paid the most attention to the stigmatizing effect of disability. This may be due to the fact that, according to Fleicher and Zames (2001), “handicapism” is the only “ism” to which we are all vulnerable. This vulnerability is regarded as one of the causes of the negative assumptions and attitudes of people without disabilities. Contact with a person with a disability is a reminder to people

without disability of the potential for becoming “disabled” in the future. This “existential anxiety” causes people without disabilities to actively shun, discredit, and devalue people with disabilities (Dovidio et al., 2000).

These stigmatizing actions have profound consequences to full access to the benefits of social participation (Susman, 2000). The consequences include fewer career development and employment opportunities, fewer social and romantic relationships, decreased access to recreational opportunities, and decreased access to education among others (Dovidio et al., 2000; Goffman, 1963; Susman, 2000).

Like people with disabilities in the general population, students with disabilities in college are subjected to stigmatizing assumptions and prejudice (Trammell, 2006; Wolanin & Steele, 2004). There is evidence to suggest that the post secondary environment can be unfriendly to students with disabilities (Wilson & Getzel, 2001). This “campus climate” refers to the attitudes held by members of the campus community including administrators, faculty, staff, and students (West, Getzel, Zhu, Ipsen, & Martin, 1993). Unfortunately, the postsecondary educational setting is not immune to stigmatizing attitudes. Indeed, the culture of academe is believed by many disability researchers to be the greatest barrier to educational access and attainment for students with disabilities (Wolanin & Steele, 2004).

Trammell (2006) found that college students with disabilities reported stigma negatively affected their education both outside and inside the classroom. Students with disabilities reported professors treated them unfairly, had different expectations and grading criteria, or provided less assistance. Other researchers also found evidence of these negative encounters (Brantlinger, 2004; Marson, 2004). In addition, students with

disabilities reported they were treated differently if they disclosed their disability to friends, that the postsecondary environment was uninviting to students with disabilities, and that they must work significantly harder than other students to succeed (Marson, 2004). These observations (or perceptions) by students with disabilities can have a profound effect on their educational experience and educational goal attainment.

Hartmann-Hall and Haaga (2002) found that students with disabilities were less likely to seek help or request needed accommodations when they perceived higher levels of environmental stigma. Such a decision can have significant consequences for students with disabilities since research has consistently linked accommodation usage to academic success (Lancaster, Mellard, & Hoffman, 2001; Palmer & Roessler, 2000; Trammell, 2003). For students already vulnerable to college failure, decisions that further jeopardize their educational attainment can doom postsecondary degree completion.

Goffman (1963) theorized that people who are stigmatized must exert a great deal of psychological and emotional energy managing the effects of stigma. The repeated and constant degradation they endure, he proposed, taxes psychological reserves needed to navigate day-to-day activities. Jones et al. (1984) explained the depletion of this psychological reservoir reduces the ability of people who are stigmatized to cope. Adaptation to college is an adjustment process that inherently requires students to cope with high levels of anxiety, uncertainty, and stress (Brooks & Dubois, 1995; Paul & Brier, 2001). Students with disabilities are likely, therefore, to have lower levels of adaptation to college when they perceive greater levels of environmental and attitudinal stigma. For this study, perceived stigma on a college campus served as a predictor variable for adaptation to college for students with disabilities.

Acceptance of Disability

People with disabilities are confronted with a number of social, attitudinal, and environmental barriers (Parker, Syzmanski, & Patterson, 2005). These barriers can have serious psychological and emotional consequences that compound attainment of personal goals and dreams (Falvo, 1999). Such emotionally devaluing circumstances can cause individuals with a disability to reject or deny the presence of their disability, maintain thoughts of a cure, or take considerable efforts to conceal the presence of a disability from others (Ososkie & Schultz, 2003). Ironically, this difficulty with acceptance of disability often serves to further complicate the disability experience (Li & Moore, 1998).

Dembo et al. (1956) theorized acceptance of disability closely resembles a psychological shift toward acceptance of loss. These four shifts include Enlargement of Scope of Values, Subordination of Physique, Containment of Disability Effects, and Transformation from Comparative Values to Asset Values. Enlargement of Scope of Values refers to the ability of a person with a disability to embrace values that are not incongruent with having a disability. Subordination of Physique refers to the ability to place less emphasis on physical appearance and ability. Containment of Disability Effects involves minimizing the effect of the impairment due to disability. Transformation from Comparative Values to Asset Values means people with a disability no longer judge their value by measuring themselves against others; instead they recognize personal abilities and assets (Dembo et al., 1956; Wright, 1983). Acceptance of disability is an intrapersonal non-linear process that rests on a continuum

from denial of disability to an acceptance of disability. “Acceptance” not only acknowledges the presence and effect of a disability but individuals very often assign positive aspects to the disability experience (Ososkie & Schultz, 2003).

Higher levels of acceptance of disability have been associated with empowering outcomes like higher self-esteem (Belgrave, 1991; Heinemann & Shontz, 1982; Linkowski & Dunn, 1974; Starr & Heiserman, 1977). In an exploration of acceptance of disability and its correlates, Li and Moore (1998) found that people with disabilities who were younger, married, and had a higher family income had higher levels of acceptance of disability. In terms of disability, they found people with congenital disabilities, as opposed to acquired, had higher levels of acceptance of disability and so too did people with only one disability, as opposed to people with more than one disabling condition. People without chronic pain also scored higher in this regard. The strongest predictors of disability acceptance were self-esteem and emotional support, while a negative relationship emerged between acceptance of disability and perceptions of social hostility and discrimination. In addition, education level and income also had positive effects when all other demographic characteristics were taken into account (Li & Moore, 1998). A review of the literature revealed that acceptance of disability has yet to be explored among students with disabilities in college.

Li and Moore (1998) also found higher levels of acceptance are associated with positive psychological outcomes. Wright (1983) theorized that people with disabilities with higher levels of acceptance of disability are more psychologically and emotionally durable. This psychological sturdiness contributes to individual ability to cope with stressors. The process of adapting to college is stress provoking. Students with disabilities

with higher levels of acceptance of disability, therefore, are more likely to have higher levels of adaptation to college. For the current investigation, acceptance of disability served as a predictor variable for adaptation to college for students with disabilities.

Rationale and Need for the Study

Researchers have established that early college adaptation is associated with eventual degree attainment (Krotseng, 1992). Adaptation to college, however, is a complex process that includes not only academic but psychological, emotional, social, logistical, environmental, and personal considerations (Tinto, 1993). Given the significant barriers to college success students with disabilities encounter, it is unsurprising that they are more likely to drop-out of college or take much longer to complete college (Wolanin & Steele, 2004). Despite our understanding of some of the complexities of the transition process and the college experience of students with disabilities very little is known about their adaptation process, or lack thereof. For instance, what intrinsic and/or extrinsic factors predict their adaptation to college?

Adams and Proctor (2010) established that students with disabilities have significantly lower levels of adaptation than their peers from the general student population. A review of the literature revealed that little is known about the factors contributing to adaptation to college for students with disabilities as an aggregate population (Adams, 2007; Adams & Proctor, 2010; Sanders & Dubois, 1996). The current study addressed some of these gaps in the empirical literature and contributed to our professional knowledge reservoir on the topic.

Definition of Terms

College students with disabilities. College students with disabilities are adults in higher education who have a diagnosed disability that functionally limits one or more areas of postsecondary participation (Association for Higher Education and Disability, 2010). For the purpose of the study, college students with disabilities were students registered with their institution's office for disability services who are attending a 4-year, public or private college or university in the United States.

Postsecondary education. Postsecondary education refers to any education beyond high school. For the purpose of this investigation, postsecondary education referred to a 4-year degree granting institution of higher education. Postsecondary institutions were public or private, and were referred to as a college or university.

Stigma. A stigma is a trigger in social interactions for negative stereotypes about individuals who are stigmatized (Goffman, 1963). For the purpose of this study stigma referred to the negative attitudes and stereotypes experienced by college students with disabilities on a college campus.

Perceived stigma. Perceived stigma is the degree to which stigmatized individuals believe they are being subjected to social and/or environmental negative stereotypes and assumptions due to the presence of a stigma (in this case, disability). In the case of this study, the perceivers of stigma were college students with disabilities and the social context was college (Trammell, 2006). Perceived stigma was measured using the Postsecondary Student Survey of Disability-Related Stigma (PSSDS; Trammell, 2009). Higher scores on the PSSDS represented higher levels of perceived stigma.

Acceptance of disability. Acceptance of disability is a type of psychosocial adjustment to disability influenced by a shift in values (Dembo et al., 1956). This shift occurs in four areas including Enlargement of Scope of Values, Subordination of Physique, Containment of Disability Effects, and Transformation from Comparative Values to Asset Values. Acceptance of disability was measured with the self-report inventory the Adaptation to Disability Scale-Revised (ADS-R; Groomes & Linkowski, 2007). Scores and findings from the ADS-R were referred to as “acceptance” of disability rather than “adaptation” to disability to prevent any confusion with comparisons to past literature and the other construct in the study (adaptation to college). Higher scores on the ADS-R represented greater levels of acceptance of disability (Groomes & Linkowski, 2007).

Adaptation to college. Adaptation to college refers to an adjustment process that involves coping with a complicated array of changes due to first time matriculation to college (Baker & Siryk, 1999). Adaptation to college was measured with the Student Adaptation to College Questionnaire (SACQ; Baker & Siryk, 1999). Higher scores on the SACQ represented higher levels of adaptation to college.

Purpose of the Study and Research Questions

The purpose of this study was to explore variables that might predict college adaptation for students with disabilities. Specifically, this study sought to understand the relationship between perceived stigma, acceptance of disability, and student adaptation to college. In addition, the design and analysis of these variables permitted an understanding of the combined contribution of perceived stigma and acceptance of disability on student adaptation to college. Since this study was designed to better understand predictive

associations, the research question was conceptualized to explore the relationship between the constructs of interest with students with disabilities (Heppner, Wampold, & Kivlighan, 2008). As such, the study explored the following research question: What is the combined contribution of perceived stigma and acceptance of disability on adaptation to college for students with disabilities?

CHAPTER 2

REVIEW OF LITERATURE

In this chapter a review of the literature includes the topics and considerations salient to the study. These include the definitions of the constructs of research interest, a review of the most influential studies, and a critique of the most important studies relative to the selected constructs. The constructs are adaptation to college, college students with disabilities and adaptation to college, transition from secondary to postsecondary education, stigma, psychosocial consequences of stigma, dimensions of stigma, stigma and campus climate for students with disabilities, and acceptance of disability.

Adaptation to College

Every year, students with disabilities seek postsecondary education in increasing numbers (Gilson, 1996; Wilson & Getzel, 2001; Wolanin & Steele, 2004). As a result of their growing numbers and complex needs, they are at a clear disadvantage in a postsecondary setting compared to the typical college population. In postsecondary education, 28% of students with disabilities earned a bachelor's degree compared to 54% of their peers without disabilities (National Center for Educational Statistics, 2000). Twenty five percent of students with and without disabilities, however, obtained an associate's degree or vocational certificate (Wolanin & Steele, 2004). College graduates with disabilities have better career outcomes than their peers who did not obtain a bachelor's degree (Stodden, 1998).

Homesickness, loss of friends, separation from family, loneliness, depression, sleep disturbance, anxiety, financial strain, increased responsibility, change in daily routine, stress, increase in academic workload, new housing, new roommate/s, shift in

relationships with instructors, personal freedom, and change in classroom setting are among the many challenges students encounter when beginning college (Brooks & Dubois, 1995; Paul & Brier, 2001). The considerable list of life changes inherent in the new college experience illuminates the difficult and complex process of adaptation students must undertake to adjust to college. Many students simply never adapt resulting in high numbers of attrition. In the first two years of higher education, 20% to 25% of college students leave school and up to 30% leave in subsequent years (Hamilton & Hamilton, 2006). Half of students who began college, therefore, do not obtain a degree. These statistics have prompted both researchers and college administrators to pay greater attention to the complex issue of adaptation to college (Adams, 2007; Mooney, Sherman, & LoPesto, 1991), which was once thought to be a largely uncomplicated process dependent only on academic ability.

Early attempts by researchers to predict which students would be successful in college considered only academic factors such as high school GPA and standardized entrance examinations (Adams, 2007). Researchers have since discovered the adaptation process is multi-dimensional and they have identified psychological and emotional challenges, as well as factors that affect coping acumen (Baker & Siryk, 1984; Mooney et al., 1991). In 20 years of research, adaptation to college has been found to be related to self-esteem, assertiveness, perceived social support, optimism, ACT scores, intellectual ability, stressful events, perceived distance from home, and sense of mastery (Aspinwall & Taylor, 1992; Brooks & Dubois, 1995; Cantor, Norem, Neidenthal, Langston, & Brower, 1987; Darvill & Johnson, 1991; Geist & Borecki, 1982; Elliot & Grambling, 1990; Felsten & Wilcox, 1992; Mooney et al., 1991; Sternberg & Kaufman, 1998).

College Students with Disabilities and Adaptation to College

Given the complexities of the college adaptation process and the need for a deep reservoir of coping abilities, students whose circumstances are already difficult are likely even more vulnerable to attrition. College students with disabilities experience life circumstances that compound this adjustment process (deFur, Getzel, & Trossi, 1996). Like their peers without disabilities, students with disabilities are recognizing the need for a college degree to further career goals and future earning potential. As a result, the number of college students with disabilities is increasing (Gilson, 1996; Stodden, Jones, & Chang, 2002; Wilson & Getzel, 2001; Wolanin & Steele, 2004). An examination of transition plans for students with disabilities in secondary education revealed that four out of five students identified college as a post high school goal (Cameto, Levine, & Wagner, 2004). Additionally, the National Longitudinal Transition Study-2 (Newman, Wagner, Cameto, & Knotkey, 2009) found that four years following high school graduation, 45% of young adults with disabilities reported matriculation to college. Half of all college students are at-risk of leaving college. For students with disabilities, however, this statistic increases significantly (deFur et al., 1996). In an eight year period from the mid-1980s to mid-1990s students with disabilities were believed to be making gains in postsecondary degree attainment when an increase in graduation rates from 14% to 16% was observed (Harris & Associates, 1994). In 2000, however, this number unexpectedly decreased to 12% (Harris & Associates, 2000). Although very little is known about the adaptation process specific to college students with disabilities, circumstances salient to

their college experience are instructive. These realities provide some explanation for adaptation difficulties faced by students with disabilities in higher education.

In addition to the challenges present for all new college students, students with disabilities face many logistical, socio-environmental, and attitudinal barriers to success (Wolanin & Steele, 2004). Another hurdle is a change in the legal structure that covers students with disabilities in college. This change in legal context dictates a considerable difference in the services available to students with disabilities (Madaus & Shaw, 2004; Stodden et al., 2002).

In kindergarten through 12th grade, youth with disabilities are guaranteed disability related educational support by the Individuals with Disabilities Education Act and later the Individuals with Disabilities Education Improvements Act (IDEA, IDEIA; Individuals with Disabilities Improvements Act of 2004; Parker et al., 2005). This legislation and subsequent amendments were passed to ensure students with disabilities in K-12th grade received the supports necessary to optimize academic success. IDEIA requires schools to undertake the identification of students who may have disabilities requiring intervention and remediating support. Once identified with a disability, students functional learning deficits must be recognized and a plan of remediation undertaken (IDEIA of 2004; Parker et al., 2005). This formalized planning procedure is known as an Individualized Education Plan (IEP). The IEP delineates the steps needed to ensure student success, states these in writing, and is agreed upon by all stakeholders including parents, teachers, school administration, school counselors, and students. The IEP not only contains the program of remediation but must state any academic modifications identified by all stakeholders to ensure student success. In addition, to secondary school

goals the IEP must also state student post high school goals, transition goals, and the means by which these will be attained. These post high school goals must be delineated in the IEP and can include desires for work and/or postsecondary education. The breadth and depth of the legal framework guiding postsecondary education, however, operates very differently from IDEIA (Parker et al., 2005).

College students with disabilities are no longer covered under the supportive auspices of IDEA and IDEIA; instead they are legally protected by Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA; Parker et al., 2005). Section 504 and the ADA are different from IDEA in terms of their coverage and scope. These pieces of legislation are meant to provide “equal access” rather than support a process leading to success (Americans with Disabilities Act, 1990; Rehabilitation Act of 1973; Wolanin & Steele, 2004). An unfortunate disadvantage for students with disabilities is that they can become accustomed to the high level of support provided for by IDEIA. They can be surprised to learn that services in college are very different from those they have become accustomed to, in many cases, since early grade school. Unlike in K-12, institutions of higher education are not required to seek out and identify students with disabilities nor are they required to provide any services or supports beyond those that ensure equal access. What students often fail to recognize or understand is that the very definition of “services” has changed.

In secondary education, services that alter the manner in which the student learns are called “modifications” (Madaus & Shaw, 2004). These modifications can include, but are not limited to, extra time on exams, changes to examination format, use of a scribe, use of a note taker in class, or enlargement of the text size of written materials. In higher

education the same disability services are known as “accommodations” and are only meant to ensure access. In many cases, although the service is the same in type it may not be as extensive in college. For instance, extra time on examinations in high school may be unlimited, whereas time extensions beyond 50% in college are rare and “unlimited” time is prohibited (Wolanin & Steele, 2004). Other ancillary supports provided in high school that are not required of college disability support services include tutoring services, one-to-one academic skill building remediation, course substitutions, lowering of academic standards, and the development of a plan of degree completion. In some cases, however, a college may elect to offer any of these services as a fee-for-service offering or at no cost to students. Another adjustment to college is that the involvement of students and parent/guardians in educational planning is at the discretion of the student (Wolanin & Steele, 2004). Students with disabilities in high school are often accustomed to the involvements of not only their parent or guardians but also every school professional in contact with students. In college, while other members of the college community are often encouraged to assist with provision of services to students with disabilities most often disability related services are provided almost exclusively by DSS personnel (Wolanin & Steele, 2004). Given the differences in service provision for students with disabilities between high school and college, it is easy to see why students could regard the transition reality as confusing and stressful.

The stresses presented by differences in service provision from high school to college demonstrate just one aspect of the complicated challenges students with disabilities encounter when they matriculate into higher education. In addition to the change in the scope of services available to students with disabilities in college, simply

availing themselves of these services is often time consuming. This involves making an appointment with the college or university DSS representative and providing valid documentation of the disability. This documentation must have been completed by an appropriate medical or psychological professional and essentially certifies the existence of a disability. The certification of a disability alone will not qualify the student for service eligibility and accommodations in college. The documentation of disability must also unequivocally demonstrate that the student is functionally limited in a manner that might affect equal participation in college activities or academics. Depending upon the type of disability and especially the associated functional limitations and accommodations, the logistics of service provision can be burdensome (Wolanin & Steele, 2004).

Stodden et al. (2002) insist that in addition to the logistical considerations of disability services, there is evidence to suggest both the quality and quantity of services likely vary from one institution to another. An example of this can be as simple as difference in the documentation required from one school to another. While standards of practice suggest, for instance, that documentation of a learning disability (LD) be not more than four years old (Stodden et al., 2002; Wolanin & Steele, 2004), some DSS personnel may permit older evaluations of LD. Another example might be due to geographic location. Colleges located in more urban rather than rural settings may have greater access to other professionals needed to provide access (e.g., American Sign Language interpreters, real time captionists). In addition to burdens due to variability of services from school to school, a seldom considered aspect of the disability experience is the issue of time. Due to either the functional limitations of their disabilities or due to the

logistical demands utilizing needed accommodations, students with disabilities encounter increased demands on their time. For instance, students with mobility disabilities often take more time getting to-and-from campus locations. Students with learning disabilities may encounter time drains due to a need for longer study sessions and students with print related disability may need to schedule time to use screen reading software only provided in a particular computer lab during limited hours. Despite the cumbersome nature of college participation associated with having a disability, the most salient barrier to students with disabilities is due to the attitudinal climate on campus (Stodden et al., 2002).

Stodden et al. (2002) assert the social environment on colleges is interlaced with negative, stereotypical attitudes about people with disabilities, and not only their ability to be successful in higher education but even their right to college participation. Most of what is known about the experiences of students with disabilities in postsecondary education is based on studies of particular sub-groups of students with disabilities (e.g., students with LD, ADHD, physical disability). Only two studies provide information about this population as a collective community (Adams, 2010; Sanders & Dubois, 1996).

For students with physical disabilities greater attachment to friends and parents was related to levels of adaptation to college (Leatherman-Sommers, 1999). Saracoglu et al. (1989) compared 34 students with learning disabilities and 31 students without learning disabilities (NLD) at a Canadian University. The reported distribution of sex in the LD group was 24 male and 10 female. The authors reported the LD and non-LD group were matched based upon sex, age, and year in school. It is unclear, however, how

this matching was accomplished given the groups contained unequal numbers (LD = 34; NLD = 31). Students with LD were recruited through the university's Learning Disabilities Program and were eligible for services based upon Canadian law and the associated definition of learning disability. They found students with learning disabilities had lower levels of adjustment to college than students without learning disabilities. Specifically, differences existed between students with and without learning disabilities on self-esteem, personal-emotional adjustment, and academic adjustment. Students with learning disabilities also reported a greater need for counseling services and academic support. The location of the university and differences in Canadian and United States law pertaining to learning disability makes generalization of these findings to universities in the United States difficult.

Ryan (1994) surveyed community college freshmen with ($n = 24$) and without ($n = 23$) learning disabilities pre and post semester for one academic year for a total of four administrations. She found that despite high expectations for adjustment to college before matriculation, students with learning disabilities were significantly less satisfied with their adjustment to college than their peers without learning disabilities. The study was performed at a mid-sized community college, however, the recruitment procedure for this study was not reported. The four instruments used in the study were developed by the author for the investigation, and the construct validity and reliability of these instruments was not provided. In addition, significant attrition occurred over the duration of the study. In the LD group 38% of the participants left the study, while in the NLD group 30% dropped out. Complete data, therefore, were only obtained for 24 students with LD and 23 without. These final numbers are small for parametric analysis and Ryan noted

“relatively small cell frequencies were used to measure some variables” (p. 247). Small cell numbers can be a threat to the generalizability, sensitivity, and accuracy of analytic findings. In these cases, particular attention must be paid to the statistical assumptions that must be met to perform parametric analyses (Tabachnick & Fidell, 2007). If the assumptions for these data were examined prior to statistical analyses, it was not reported for this study.

Shaw-Zirt, Popali-Lehane, Chaplin, and Bergman (2005) matched college students with symptoms of Attention Deficit Hyperactivity Disorder (ADHD) and students without on gender, age, and GPA, and compared their adjustment to college. They found students with ADHD had significantly lower scores on the Student Adaptation to College Questionnaire (SACQ) compared to their peers without ADHD. In addition, students with ADHD had lower levels of self-reported social skills and self-esteem and these were both associated with lower levels of adaptation to college. The researchers were only able to recruit 21 students with symptoms of ADHD and 20 without, making results from parametric analysis suspect. The participants were “commuter” students at two campuses of a Catholic university in the Northeast. The generalizability of findings can only be made to students of a similar profile. In addition, students with “symptoms” of ADHD had no previous history of an ADHD diagnosis. “Symptoms” of AHDS were defined by self-reports, parent report of childhood symptoms of inattention/hyperactivity, and structured interviews. Any results relating to group comparisons is, therefore, not very useful because students with “symptoms” of ADHD are never identified in college. Students with a clinical diagnosis of ADHD,

however, are routinely served in college. Any generalizations from this study to students with diagnosed ADHD would be misplaced.

In the same study, Shaw-Zirt et al. (2005) also noted the proportion of students, by sex, was very different than community ratios. In the study a ratio of male to female students with symptoms of ADHD was approximately 1:1.5. In community settings this proportion tends to be closer to 2:1 or greater. When citing this difference between college and community settings, the authors did not recognize their participants did not have an ADHD diagnosis and were therefore unlikely to match demographic characteristics of people with ADHD in clinical and community settings. The finding of sex ratio difference was, in reality, evidence of the flaws inherent in their screening procedures.

Estrada, Dupoux, and Wolman (2006) compared students with ($n = 31$) and without ($n = 30$) learning disabilities on locus of control, and social and personal-emotional adjustment to college. They found students' state of locus of control was important to both groups on social and personal-emotional adjustment to college. No significant differences were found on locus of control or personal-emotional adjustment for students with and without LD. Students with LD, however, scored higher on social adjustment than students without LD. Participants for the study were recruited from a private and public institution in southeast Florida, female participants comprised two-thirds of the study sample, and minority students predominated the sample (Hispanic = 49.2%; Black = 29.5%). When scheduling volunteer students to participate in the study, the investigators reported that nearly 50% of those who volunteered to participate did not show for the paper-based survey administration. In essence, the researchers only found

differences between the groups in one adjustment area (social adjustment). In this case, students with LD had significantly higher levels of social adjustment than their peers without LD. This finding is somewhat puzzling as students with LD would be expected to have a more difficult social adjustment to college. The authors offered that this finding may be due to the fact that students with LD may be more practiced at coping with challenges and therefore are able to generalize this skill to other challenging circumstances such as college transition. Due to the small cell numbers and an atypical participant pool, however, their findings should be interpreted and generalized with caution.

Ryan, Nolan, Keim, and Madsen (1999) compared students with and without LD at two private mid-sized universities in the Midwest. For the study, 250 students with and without LD were randomly selected from registrar's records. One hundred and twenty-five were then randomly selected from each group and invited to participate in the study. Fifty-one students with LD and 59 without responded to the invitation. They found students without LD were more likely than students with LD to live with friends (rather than family, spouse, etc.). Students with LD, however, were more likely to have anticipated a need for both academic and personal counseling. In terms of results from the Personal Orientation Inventory, students with LD were more likely to have higher self-actualizing tendencies and were more likely to have higher feeling reactivity. Students without LD, however, were more accepting of aggression than were students with LD. The authors reported students with LD were screened on various criteria to ensure students with LD had a legitimate LD diagnosis. One of their criteria was that the student possessed no other disability that might explain LD symptomatology. They later

reported, however, that two students with LD had a history of closed head injury. According to the researchers' criteria, these students should have been eliminated from the study, as their presence in the study presented a potential study confound. One of the instruments for the study was generalized for the investigation and its length was not reported. The second instrument (Personal Orientation Inventory) is a relatively long measure (150 items) that took participants 40-50 minutes to complete. In addition, the investigators reported that 10 LD participants and 10 non-LD participants were dropped from the analysis for leaving an excessive number of items unanswered on the survey. The investigators did not report whether they scrutinized for patterns of missing data or potential problems with the survey that might have caused participants to miss items.

Sanders and Dubois (1996) examined the socio-environmental variables related to adjustment of students with disabilities. Twenty-nine full and part-time students with disabilities participated in the study. Students were initially recruited from the college disability support services office, however, low participation ($n = 14$) forced the investigators to gather more participants from an introductory psychology classes and flyer invitation. Only 15 more participants agreed to participate following these efforts to increase participation. In addition, the authors made no mention of any attempt to understand if these two different recruitment pools yielded any significant group differences. The results of a multiple regression analysis revealed students who rated themselves higher in problem-solving skills and greater social support reported fewer stressful events, used more resources, and had higher levels of adaptation to college. In addition, students with disabilities with higher levels of adaption also reported greater satisfaction with the disability access office on campus (Sanders & Dubois, 1996).

Students were asked to complete seven assessments totaling 374 items that took a minimum of one hour to complete. Heppner, Wampold, and Kivlighan (2008) recommend limiting the test administration length of surveys to 20-30 minutes for completion. Administrations of greater length are vulnerable to participant fatigue. Four of the instruments were created for the study including the demographic questionnaire, Resource Use Scale, Access Office Satisfaction Scale, and Life Events Scale. Due to the creation of these instruments exclusively for the study, the construct validity and reliability of the assessment are unknown. With a participant pool of only 29 students it is unlikely the researchers were able to accomplish acceptable power to detect relationships in the data. In addition, small numbers of participants are unlikely to meet the assumptions needed to utilize parametric statistical analysis (Tabachnick & Fidell, 2007).

Adams and Proctor (2010) surveyed 115 students with disabilities and 115 students without disabilities at five colleges and universities in the southeastern United States. Students with disabilities were administered six instruments and students without disabilities were administered two. The four additional measures taken by students with disabilities were administered to explore research questions related to predictors of student adaptation to college. Participants from both groups were recruited in a purposeful sampling procedure. Adams and Proctor found that students without disabilities, when compared to their peers with disabilities, had significantly higher levels of overall adaptation to college, better social adjustment, higher levels of institutional attachment, and higher grade point averages. Students with disabilities, however, had a more stable attributional style for both positive and negative events. Essentially, they assigned a more realistic and accurate cause to events in their lives. They also found that

higher levels of self-reported visibility of disability to others and better self-advocacy skills were statistically significant positive predictors of adaptation to college.

Participants, both undergraduate and graduate students, were found to differ significantly according to age and educational level. Students with disabilities (26.7 years) were a significantly (statistically) older group than their peers without disabilities (20 years). In terms of education level, however, more upper level students responded to the survey in the disability group (60.9%) than the non-disability group (31.3%; Adams & Proctor). The researchers may have inadvertently caused these differences by selecting students with disabilities exclusively through the disability services offices on campuses and recruiting students without disabilities in classrooms.

Although they did not report the academic levels of the classes from which they recruited, this sampling procedure is very often performed in lower level undergraduate classes. Two instruments meant to measure disability related phenomena, self-advocacy skill and visibility of disability, were developed for the purposes of the study. The validity and reliability of these measures were unknown. In addition, the Visibility of Disability Scale was comprised of a single question that would be unlikely to capture the complexity of “visibility of disability.” In addition, the visibility of disability construct was used as a proxy for stigma experience. Stigma is a multidimensional construct influenced by several considerations (e.g., peril, course of disability, level of responsibility for disability). Using only visibility of disability as a stand-in for stigma is, therefore, insufficient. Lastly, adjustment to disability was measured with a subscale of a much larger measure, the Reaction to Impairment and Disability Inventory. Removing a

subscale from its parent instrument can adversely affect the validity of the measure and impact study results.

Given findings from the described studies, it is likely students with disabilities encounter difficulties, specifically due to the experience of disability, that complicate college adaptation. Two aspects of living with a disability found to be salient factors in many life outcomes for people with disabilities are stigma and acceptance of disability (Dembo, Leviton, & Wright, 1956; Vash & Crewe, 2004; Wright, 1983).

Transition from Secondary to Postsecondary Education

A review of the literature revealed that most of our understanding of the transition process for students with disabilities comes not from empirical findings but from conceptual and informational articles each containing the same basic information but packaged to different professional stakeholders including school counselors (Adreon & Durocher, 2007; Milsom, 2007; Milsom & Hartley, 2005; Shaw, Madaus, & Banerjee, 2009), learning disability specialists (Sitlington & Payne, 2004), and special educators (Kosine, 2007). The majority of these articles addressed the transition needs of students with learning disabilities and not other groups of students with disabilities (e.g., traumatic brain injury, mental illness, cerebral palsy, paralysis). These materials also did not explore the transition needs of students with disabilities as a whole.

The general importance of a smooth and informed transition process from high school to college for students with disabilities is described in the literature on college students with disabilities. A content analysis performed by Webb, Patterson, Syverud, and Seabrooks-Blackmore (2008) revealed the most pressing subcategories of transition to college for students with disabilities. These included self-determination, social and

interpersonal skills, academic preparation, accommodations, and assistive technology. Despite these identified areas of need, the authors were unable to identify an empirically supported intervention that covers all of the listed content areas. Milsom, Akos, and Thompson (2004) pilot tested a psychoeducational small group intervention for secondary students with learning disabilities who were interested in attending college. This intervention showed promise in enhancing student disability self-knowledge and self-efficacy but cannot yet be considered a manualized, empirically supported treatment for the transition needs of students with learning disabilities, and its utility with other groups of students with disabilities has not yet been investigated. In fact, no true experimental designed studies were found in the literature on transition for students with disabilities. Among the studies on transition of students with disabilities only the Milsom et al. (2004) study tested a transition related intervention.

Most of the quantitative investigations of the factors related to transition for students with disabilities are survey-based and a review of the literature located no analogue studies. Among the quantitative studies a problem within most was a lack of psychometrically validated measures to assess the variables of research interest. A review of seven survey-based studies reveals only three used a psychometrically validated measure (i.e., Dutta, Schiro-Geist, & Kundu, 2009; Milsom, Akos, & Thompson, 2004; Smith et al., 2002). In all three studies, however, at least one researcher developed measure was included along with the validated instrument to measure a variable of interest. The issue of validity and reliability is a critical one in empirical research (Heppner, Wampold, & Kivlighan, 2008) and one that has been neglected in the research literature on transition for students with disabilities from high school to college.

Perhaps the most empirically rigorous study was performed by Hitchings, Retish, and Horvath (2005), who employed the use of archival data for 110 high school students with disabilities that tracked their trajectory, through their records, from 10th through 12th grade. They found student interest in attending college dropped over the course of three years of high school, their academic preparation became less rigorous, and only four students had plans that lead to college participation. A general weakness of this investigation was the investigators did not control for severity of disability. In other words, did the student have the intellectual potential to go to college, whether they expressed interest in future college attendance or not?

Janiga and Costenbader (2002) surveyed 74 disability support services personnel from two and four-year colleges and universities in the state of New York. The institutions were either public or private and included technical and business schools. The survey (developed for the study) included items relating to demographic information and perceived quality of services offered by the college/university DSS office. In addition, the survey included seven items that solicited DSS personnel satisfaction with transition services for students with LD registered with their offices. They were also asked three open-ended questions relating to: (a) suggestions for transition personnel to better prepare students with LD for college, (b) an estimate of the number of students with LD who graduate from their institution, and (c) an open comment item.

Janiga and Costenbader (2002) found that disability support service personnel in higher education reported students with disabilities arrived on college campuses underprepared for the challenges that this transition represented. In particular, DSS personnel were least satisfied with student self-advocacy skills, the quality of the

documentation of disability they received for students with LD, and the lack of information students were being provided about public services for students with disabilities (e. g., state vocational rehabilitation). Disability support services personnel provided suggestions for improvement to transition services. The nine suggestions included improving student self-advocacy skills, increasing students' understanding of their disability, improving basic study skills, student independence, better training of faculty and staff about transition, having students visit the DSS office before arriving on campus, assisting students with seeking financial assistance to alleviate some of the stress associated with finances, and providing instruction on stress management techniques (Janiga & Costenbader). The lack of transition preparation alluded to in their study is likely one of the factors that complicates adaptation to college for students with disabilities. The current study explored variables that might have an effect on adaptation to college for students with disabilities. Adaptation to college was used as the outcome variable (i.e., criterion, dependent) for this survey-based research and was measured using the Student Adaptation to College Questionnaire (SACQ; Baker & Siryk, 1999).

Stigma

In ancient Greece, people who were deemed undesirable, criminal, lower class, traitors, or were enslaved were subjected to involuntary "tattooing." This tattoo would be burned or cut in to the flesh of the discredited individual creating a permanent and visible scar (Goffman, 1963). The purpose of this mark of shame was to advertise the tainted status of the person bearing the blemish. This mark was referred to as a *stizen* and is the earliest known derivation of the Latin and modern English word *stigma* (Adhikari, 2007). Over time, stigma eventually came to mean any demarcation of social undesirability.

These stigmata (plural of stigma) are socially constructed and are therefore regarded negatively depending on the respective culture or community (Dovidio et al., 2000). Traditionally, the “marked” categories that elicited negative social opinion have included race, ethnicity, religion, criminal record, drug use, sexual orientation, and disability (Dovidio et al., 2000; Goffman 1963). Stigma has clearly come to mean much more than a mark of shame. Stigma is inextricably linked to the enigmatic realm of human interaction (Goffman, 1963). Understanding stigma, as a social and psychological construct, is complicated and multidimensional (Hebl, Tickle, & Heatherton, 2000).

Human interaction is characterized by considerable variety and nuance (Hebl et al., 2000; Jones, Farina, Hastorf, Markus, Miller, & Scott, 1984). When encountering new people, humans begin an unconscious investigation of the unfamiliar “other” and formulate the appropriate and complimentary response behaviors. Human beings are ill equipped, however, to adequately cope with all of these social circumstances (Hebl et al., 2000). To navigate these labyrinthine interactions, the natural human inclination is to compartmentalize aspects of social interactions and the newly encountered “other.” This management strategy is unconscious and simplifies what is otherwise enigmatic (Taylor, 1981). This internal process often results in assumptions about individuals based on the perception they are members of a particular group. These assumptions are known as stereotypes (Biernat & Dovidio, 2000).

A stereotype is a widely shared overgeneralization about a particular group (Taylor, 1981). Membership in a particular group results in lifelong stereotypical categorization. Stereotypes are the crux of stigma. The difference is that stereotypes can be either positive or negative (Biernat & Dovidio, 2000), whereas stereotypes that

stigmatize are always negative (Jones et al., 1984). These negative stereotypes become an organizing schema for interaction with the stigmatized “other.” The foundation upon which the interaction is built is, therefore, tenuous (Biernat & Dovidio, 2000).

In his seminal work on stigma, Goffman (1963) wrote about the many types of social stigma. Throughout *Stigma: Notes on the Management of Spoiled Identity*, however, he consistently referred to the stigma of disability. He further conceptualized stigma to be an interactive experience for both the stigmatized and those who subject them to stigmatization.

For “typical” or “normal” members of society or a community, Dovidio and associates (2000) believe the act of tagging certain individuals or a group of “others” as undesirable is a natural, human instinct. This practice, insists Goffman (1963), may have some significant individual and communal benefits. The social devaluing of certain individuals has the effect of solidifying the social and economic status of the dominant population (Biernat & Dovidio, 2000). By keeping “others” on the outside, opportunities for capitalizing on communal benefits become easier. These benefits might include job opportunities, friends, social networks, romantic prospects, housing, food, and access to physical safety (Jones et al., 1984). From a psychological perspective, assigning certain people to “outsider” status serves as a comparative barometer. The perceivers can feel they are superior or less pitiful than the stigmatized individual or group. This perception can bolster personal confidence and positive feelings of self (Biernat & Dovidio, 2000; Goffman, 1963).

Psychosocial Consequences of Stigma

The cost of membership in a stigmatized social category is often considerable (Crocker & Quinn, 2000). On a nearly daily basis and certainly in all interactions with new people, stigmatized individuals must manage the impact of their stigma (Cioffi, 2000). There are constant psychological and emotional demands being placed on people who are stigmatized. In every social situation stigmatized people are forced to assess the degree to which their stigmatized status and concurrent negative assumptions are being applied to them by others in the environment (Jones et al., 1984). They are forced to expend a great deal of psychological and emotional energy reading and interpreting the behaviors of others. In some cases, the effects of stigma force stigmatized individuals to make an effort to conceal their stigma (Cioffi, 2000; Goffman, 1963).

Many people who are stigmatized feel the need to conceal or limit the visibility of their stigma. People with non-apparent stigma (i.e., non-apparent or invisible disability) chose to keep the existence of a disability a closely guarded secret. In some cases, drastic steps might be undertaken to conceal the effects of an otherwise non-apparent disability (Smart & Wegner, 2000). Out of fear of being discovered, for instance, a person with memory impairment due to traumatic brain injury may refuse to seek much needed services or accommodations in an educational or employment setting at the expense of job/school performance.

Dimensions of Stigma

The visibility or degree to which a stigma is publicly apparent is an important factor in human interactions between people who are stigmatized and their more typical peers (Smart & Wegner, 2000; Vash & Crewe, 2004). Visibility, however, is not the only

factor that determines the magnitude and intensity of the stigma reaction from typical community members. Jones et al. (1984) assert that a part of the compartmentalization process typical members of society undertake when interacting with “stigmatized others” is the consideration of several perceived factors about the stigma. These factors include origin, disruptiveness, course, concealability, aesthetics, and peril (Jones et al.).

Origin refers to the source of the stigma. In the case of disability this would involve the degree of perceived responsibility people attribute to people who are stigmatized (Jones et al., 1984). For example, people with HIV/AIDS are often subjected to higher levels of stigmatization than people with cerebral palsy because people with HIV/AIDS are believed to have engaged in behavior that caused them to contract the virus (e.g., unprotected sex, IV drug use). Disruptiveness refers to the degree to which stigma is believed to interfere with communication and social interaction (Jones et al., 1984). An example would be the stigma visited upon someone who is Deaf and uses American Sign Language or a person with cerebral palsy whose clarity or rate of speech is affected. Course of stigma refers to the perceived permanence of the disability (Jones et al., 1984). An example of this aspect of perception of disability is the degree to which people believe a person can “recover” from the disability. For example, the difference in social reactions a person with a broken leg and using a wheelchair might encounter compared to the reactions observed by a wheelchair user who has paralysis.

Concealability is the degree to which a person who is stigmatized can effectively “hide” the stigma from public perception (Jones et al., 1984). For example, a person with a leg amputation is able to conceal his prosthetic leg beneath his pant leg; a wheelchair user, however, would be unable to hide the use of the wheelchair. Historically, we know

that President Roosevelt was able to conceal his use of a wheelchair. This effort was considerable and involved conspirators and the cooperation of the mainstream media. Additionally, Roosevelt was able to stand, with assistance, for short periods of time (Parker, Syzmanski, & Patterson, 2005). Clearly, Roosevelt understood and placed a great deal of value on the “concealability” of his disability. Aesthetics refers to the affect of the stigma on communally held beliefs about what is aesthetically “normal” and attractive (Jones et al., 1984).

Aesthetics can involve various forms of “disfigurement” such as amputation, physical atrophy, hair loss, skin discoloration, and scarring. In addition to the presence of aesthetic difference, aesthetics is also influenced by the volume of disfigurement, or the percentage of the body affected, the area of the body affected, and the proximity to the face. People with facial scarring, for instance, are often subjected to considerable stigma despite the fact that the scarring represents no functional impairment (Vash & Crewe, 2004). Peril refers to the perception that the stigma represents danger to others in some manner (Jones et al., 1984). This person is regarded as threatening to others. The community that is arguably most affected by this faulty perception are people with mental illness (Adhikari, 2007).

Stigma and Campus Climate for Students with Disabilities

Prejudice, discrimination, and a lack of societal understanding about disability present the greatest obstacles to people with disabilities. Children with disabilities are often subjected to teasing, bullying, and social isolation (Fleitas, 2000), and students with disabilities may still be carrying these early experiences with them into college. The experience of repeated stigmatization, often over a life span, has deep psychological consequences including depression, anxiety, social phobia, frustration, isolation, and

anger (Falvo, 1999). As a result, some college students with disabilities will not seek help or even disclose their disability because they are concerned about being stigmatized (Aune & Friehe, 1996).

In many cases, college students with disabilities have not only experienced discrimination in the past, they continue to face discrimination in college due to the negative attitudes of peers, college administrators, and faculty (West, Kregel, Getzel, Zhu, Ipsen, & Martin, 1993; Wilson & Getzel, 2001). Stage and Milne (1996) found college faculty may hold negative attitudes toward students with disabilities and other indicators suggest some faculty members are unwilling to allow basic accommodations for students with learning disabilities (Stage & Milne, 1996). Disability experts have identified faculty attitudes and the culture of academe as a major hindrance in accommodating students with disabilities in higher education (Wolanin & Steele, 2004).

Campus climate refers to a broad area that describes the overall social college environment and rests on a continuum from unwelcoming to welcoming of people with disabilities. This environment is created by social and communal attitudes towards students with disabilities. The greatest impact of attitudes (positive or negative) toward students with disabilities tends to be those of postsecondary faculty and administrators (Barnard, Stevens, Oginga-Siwatu, & Lan, 2008; Gitlow, 2001; Junco & Salter, 2004; Sheppard-Jones, Krampe, Danner, & Berdine, 2002; Vasek, 2005); the people who wield the greatest measure of power over students on college campuses. These attitudes can also come from fellow students without disabilities (Kelly, Sedlack, & Scales, 1994). These social attitudes have been known to create the greatest barriers (negative attitudes) as well as the most protective supports (positive attitudes) for students with disabilities in

higher education. Although highly influential, attitudes can be difficult to study. Despite the complexity of such studies, the greatest number of studies on college students with disabilities is related to issues of campus climate.

Perhaps the most rigorous empirical study of campus climate was investigated by Barnard et al. (2008), in which 201 faculty members at a large southwestern university were surveyed. The researchers sought to discover if diversity attitudes were a mediating factor in faculty attitudes towards people with disabilities. Participants were administered a 35-item measure that included two established and validated instruments: the Attitude Toward Persons with Disabilities Scale form O (ATPD-O) and the Miville-Guzman Universality Diversity Scale. Contrary to the investigators' hypothesized outcomes, an inverse relationship emerged from the data. The more positive the faculty attitudes toward diversity, the more negative their attitudes toward people with disabilities. Their findings suggest that faculty do not regard disability as part of the greater construct of diversity. By extension, they would not, therefore, believe that students with disabilities are making an additive contribution to the university community that is often attributed to other diverse student groups.

In another study, Upton et al. (2005) used a validated measure, a short measure developed for the study, and a case example analog to elicit information from college students with and without disabilities about their attitudes towards disability and how deserving case exemplars were of academic accommodations. Participants were administered a survey that included the Scale of Attitudes Toward Disabled People form R (SATDP-R), seven items developed for the study on educational accommodations, and 12 different case example scenarios of students with disabilities. The case examples

presented the functional limitations associated with three different types of disabilities (sensory, central nervous system disorder, emotional/behavioral). The case scenarios each presented the disability and three associated functional limitations (e.g., attention, fatigue, processing difficulties, hearing, vision). Participants were then presented with a list of potential accommodations and asked to check off all those they believed the student presented in the case scenario “deserved.” For purposes of validation, these scenarios and associated functional limitations and accommodations were reviewed by 12 rehabilitation professionals and modifications were made according to their recommendations. The findings suggest students with disabilities perceived themselves as more knowledgeable about disability than their peers without disability. Furthermore, they regarded the exemplars in the case scenarios as more deserving of accommodations than their peers without disabilities. Both sets of participants, however, rated the exemplars with the most obvious limitations as more deserving of accommodation (Upton et al., 2005).

Although analog research often offsets limitations to research due to a lack of specific instrumentation, a general overall risk of such designs is that the case scenarios themselves introduce unintended confounds. In the case of the Upton et al. (2005) study, 12 scenarios were used increasing the risk of confounding factors such as subtle unintended differences in the scenarios themselves and/or the verbiage used in each scenario. These variations may inadvertently adversely influence the study design. Nevertheless, the study was instructive as an approach to measuring constructs difficult to measure relating to postsecondary education and disability.

In general, the quantitative studies in this area of research on campus climate would benefit from the use of established measures to ensure internal validity and

reliability (Constantine & Ponterotto, 2006). It is apparent, however, few measures exist that would satisfy the needs of researchers seeking to understand issues of campus climate. In such cases, researchers must train their attention on the development of such instruments (Lounsbury, Gibson, & Saudargas, 2006). Another approach to compensate for a lack of instrumentation is the one taken by Upton et al. (2005) when they utilized an analog design to understand the phenomena of interest. A good starting point in this process, and one that not only provides a baseline of information on research phenomena but also lends richness to our understanding of college students with disabilities, is to perform qualitative research (Pollio, Graves, & Arfken, 2006).

Among the identified qualitative studies on campus climate, all four solicited information from students with disabilities; one used a focus group (Dowrick, Anderson, Heyer, & Acosta, 2005), two used structured interviews (Beilke & Yssel, 1999; Paul, 1999), and one combined both procedures (Cornett-Devito & Worley, 2005). Three studies were phenomenological in nature and the other can best be described as anecdotal. All four studies supported student perception of discriminatory attitudes on college campuses (Beilke & Yssel, 1999; Cornett-Devito & Worley, 2005; Dowrick et al., 2005; Paul, 1999). Although one study lacked the rigor needed to be considered empirical, the other three studies used established qualitative methods including trustworthiness, credibility, triangulation, member checks, peer debriefing, data reduction, and data bracketing (Cornett-Devito & Worley, 2005; Dowrick et al., 2005; Paul, 1999). All three studies supplied a rich source of information on the in vivo experience of students with disabilities in postsecondary settings. These studies provided

evidence that social and environmental attitudes remain influential on the postsecondary experiences of students with disabilities.

The current study used perceived stigma on a college campus for students with disabilities as an independent variable. This variable was measured with the recently developed Postsecondary Student Survey of Disability-Related Stigma (PSSDS; Trammell, 2009). Before the development of the PSSDS, researchers did not have a validated measure of perceived stigma in college. Therefore this study was the first known study to explore this variable and its relationship to adaptation to college.

Acceptance of Disability

Parker, Syzmanski, and Patterson (2005) contend the existence of disability in life presents people with disabilities with many attitudinal, social, and environmental hurdles. These challenges can have serious psychological and emotional consequences that can hinder attainment of personal goals and the realization of dreams (Falvo, 1999). These experiences may cause individuals with a disability to resent their disability, expend considerable energy on recovery or cure, or go to great lengths to conceal the presence of a disability from others (Ososkie & Schultz, 2003). These circumstances compound an already complicated life situation and may hinder the development of coping processes that may lead to eventual acceptance of disability (Li & Moore, 1998).

Dembo, Leviton, and Wright (1956) theorized the presence of or acquisition of a disability inherently involves significant loss. This loss is as influential as the death of a significant other, the loss of a home, or end of a significant relationship. The psychological process that could lead people with a disability to accept their disability parallels the process of acceptance of loss. Dembo et al. (1956) further concluded that

successful adjustment to disability reflected an ability to “cope.” Unsuccessful or complicated adjustment to disability meant the individual had “succumbed” to the circumstances of disability. Characteristics that reflected the coping framework, they believed, included (a) an emphasis on remaining abilities, (b) being proactive with the direction one will take in life, (c) acknowledging accomplishments, (d) the ability to manage negative experiences in life, (e) making changes in the physical and social environment that will alleviate limitations, and (f) engaging in and enjoying activities (Dembo et al., 1956).

Wright (1983) expanded upon earlier theories of acceptance of disability by framing it as a psychosocial adjustment process that involves a shift in personal values. She postulated the process of acceptance of disability required an individual with a disability learn how to deemphasize perceived losses from disability related impairment and place greater value on abilities unaffected by disability. Wright suggested four areas of value reassignment that enhance acceptance of loss due to disability and overt processes that devalue the self: Enlargement of Scope of Values, Subordination of Physique, Containment of Disability Effects, and Transformation from Comparative Values to Asset Values. Enlargement of Scope of Values is the ability of a person with a disability to adopt values and attitudes that do not conflict with having a disability. Subordination of Physique involves placing less value on physical appearance and physical abilities. Containment of Disability Effects refers to the minimization of impairments or functional limitations caused by a disability. Transformation from Comparative Values to Asset Values for people with a disability involves judging themselves based upon personal assets, abilities, and strengths alone and not strictly in

relation to others. Acceptance of disability is an intrapersonal non-linear process that suggests a continuum or stage process but actually does not follow a linear trajectory from non-acceptance to acceptance. Every process of adjustment to disability is individual and therefore cannot be assigned to a strict stage model. Eventual acceptance, however, suggests a hierarchy that leads to self-actualization due to a shift in values (Livneh & Antonak, 1997). This shift not only acknowledges the presence and affect of a disability but individuals very often even assign positive aspects to the disability experience (Ososkie & Schultz, 2003).

Based upon Dembo et al.'s (1956) acceptance of loss theory, which reflects a shift in values, Linkowski (1971) developed the Acceptance of Disability Scale (AD). Specifically, the instrument used a 50-item self-report questionnaire to measure the four value shifts proposed by Dembo et al.: Enlargement of Scope of Values, Subordination of Physique, Containment of Disability Effects, and Transformation from Comparative Values to Asset Values. The AD scale was designed to assess acceptance of disability on a six-point Likert scale (1 = *disagree very much*, 6 = *agree very much*) for people with physical disability (Bolton, 2001). During validation of the AD construct, Linkowski (1971) found the AD was correlated with the Attitudes Toward Disabled Persons Scale-Form B (ATDP-B). The ATDP-B is a measure of attitudes of acceptance for people with disabilities. A Spearman-Brown split half reliability procedure produced a reliability coefficient of .93 for the AD. A factor analysis revealed a single factor that accounted for 48% of the shared variance suggesting that the AD measured one construct (Linkowski, 1971). The AD was used for many years in disability and rehabilitation

research and provided fruitful information about the adjustment to disability experience (Livneh & Antonak, 1997)

Higher levels of acceptance of disability have been associated with higher self-esteem (Belgrave, 1991; Heinemann & Shontz, 1982; Linkowski & Dunn, 1974; Starr & Heiserman, 1977), being married, younger, and having a higher family income (Li & Moore, 1998). Li and Moore (1998) found people with congenital disabilities had higher levels of acceptance of disability than those with acquired disabilities. In addition, people with only one disability rather than multiple disabling conditions had higher levels of acceptance of disability and those who did not experience chronic pain also scored higher in acceptance. Li and Moore also found the strongest predictors of disability acceptance to be self-esteem and emotional support. Education level and income also had positive effects when all other demographic characteristics were taken into account. A negative relationship, however, between acceptance of disability and perceptions of social hostility and discrimination was also identified (Li & Moore). Patrick (1984) found acceptance of disability was higher among more experienced wheelchair athletes when compared to more novice peers. Poll and Kaplan De-Nour (1980) measured AD scores and state of locus of control with people with chronic hemodialysis dependence. Participants with greater state of locus of control also had higher acceptance of disability. Among teenagers with oral-facial clefts, Starr and Heiserman (1977) found acceptance of disability was positively related to self-esteem among participants in their study. Linkowski and Dunn (1974) found that for 76 college students with physical disabilities acceptance of disability was positively related to measures of self-concept. In two separate studies women were found to score higher on acceptance of disability

(Heinemann, Goranson, Ginsberg, & Schnoll, 1989; Woodrich & Patterson, 1983).

Additionally, AD scores were positively related with years of education (Poll & Kaplan De-Nour, 1980) and assertiveness (Glueckauf, Horley, Poushinsky, & Vogel, 1984; Starke, 1987).

Despite the rich findings yielded in studies using the AD, in recent years the AD has been criticized for being out-of-date, having suspect construct validity, and somewhat weak psychometric properties (Groomes & Linkowski, 2007; Livneh & Antonak, 1997). In response to this critique, Groomes and Linkowski (2007) updated the AD and subjected it to factor analytic scrutiny and item reduction techniques. In addition, they modified item language to reflect current disability and rehabilitation practice (Groomes & Linkowski, 2007). Using 356 people with physical disabilities in three settings (independent living center, public sector rehabilitation services, university disability resource center), they found support for the four factor model theorized by the early AD scale. In addition, results of an “item deletion” procedure supported the reduction of the total number of items from 50 to 32, while retaining high levels of both subscale and overall internal consistency (Transformation = .88; Enlargement = .82; Containment = .88; Subordination = .71; Overall scale = .93). Following item reduction the ADS-R retained the same overall reliability coefficient as the original AD scale (Cronbach’s alpha = .93). Groomes and Linkowski (2007) also reduced the number of points used in the Likert scale, while retaining an even numbered forced choice scale. The new scale uses a 4 point Likert scale (AD = 6 point) but retains the scale representation and scale direction from 1= *Strongly Disagree* to 4 = *Strongly Agree* (Groomes & Linkowski,

2007). The current investigation used the new ADS-R instrument to measure the predictor variable acceptance of disability.

Livneh and Antonak (1997) explained many self-report measures of psychosocial adaptation to disability exist. These instruments vary in terms of constructs measured, dimensionality, quality, and population targeted. A review of the literature revealed only one other study that explored the predictive influence of psychosocial adaptation on adaptation to college for students with disabilities in college. Adams and Proctor (2010) used the Adjustment subscale of the Reactions to Impairment and Disability Inventory (RIDI) to measure the influence of adjustment to disability on adaptation to college. They did not find this variable to be a statistically significant predictor of adaptation to college.

Psychosocial adaptation to disability (RIDI) and acceptance of disability (ADS-R) are different constructs that have very different philosophical undergirding (Livneh & Antonak, 1997). The RIDI, as its name suggests, measures “Reactions to Disability” while the AD and ADR-S measures acceptance of disability. The RIDI measures a temporal shift that closely mirrors stage theories on adjustment to loss. This temporal structure is measured with a 60 item assessment (RIDI) using eight subscales reflecting these “reactions:” Shock (7 items), Anxiety (8 items), Denial (7 items), Depression (8 items), Internalized Anger (7 items), Externalized Hostility (8 items), Acknowledgement (7 items), and Adjustment (8 items). The AD and ADS-R measure an intrapersonal value shift in four core areas reflected by its four subscales: (a) enlargement of the scope of values, (b) subordination of physique, (c) containment of disability effects, and (d) transformation to self-evaluation based on personal assets (Groomes & Linkowski, 2007; Linkowski, 1971). Although the RIDI and ADS-R reflect different foundational

philosophies, the two measures share some variance on two of the RIDI subscales and the total score for the AD. The total score for the original AD scale and a composite score of the Acknowledgement and Adjustment subscales of the RIDI correlated at .68 (Livneh & Antonak, 1997). This finding supports the idea that both measures are capturing some similar intrapersonal processes related to psychosocial adaptation to disability. A relationship of .68, however, also suggests that these measures are not “one-and-the-same.”

It is unsurprising, therefore, that adjustment to disability was not a significant predictor of adaptation to college for students with disabilities. Adams and Proctor (2010) conceded the reason for this finding was likely due to the fact that they surveyed students with disabilities who were registered with their disability support services office. The conjecture was that students willing to self-identify with their DSS office were likely to have had higher levels of adjustment to disability from the outset. Stodden et al. (2002) suggested students with disabilities who make the effort to register with DSS are more likely to be well adjusted to their disability and with advocating for disability related services.

Li and Moore (1998) found higher levels of acceptance are associated with positive psychological outcomes. Wright (1983) theorized people with higher levels of acceptance of disability are more psychologically and emotionally durable. This psychological sturdiness contributes to individual ability to cope with stressors. The process of adapting to college is stress provoking. Students with disabilities with higher levels of acceptance to disability, therefore, are more likely to have higher levels of adaptation to college.

A review of the literature reveals acceptance of disability had not been previously explored among students with disabilities in college. The current investigation explored whether students with disabilities had made the value shift needed to not only adjust to disability but have a high level of acceptance of disability. In addition, the current study used acceptance of disability as a predictor variable for adaptation to college for students with disabilities. Acceptance of disability was measured using the Adaptation to Disability Scale-Revised (ADS-R; Groomes & Linkowski, 2007).

CHAPTER 3

METHODOLOGY

In this chapter, the methodology for the study is outlined and discussed, including a description of the target population and the procedure employed for collecting data from the population of research interest. The measures used in the study are described and discussed, and the pre-analysis steps and parametric statistics used for the data analysis identified. In addition, the research questions and hypotheses guiding the study are presented.

Participants

Participants for the study were undergraduate college students with disabilities who were registered with the disability support services office at their respective college or university. The participants attended four year, public or private institutions of higher education and were recruited with a purposeful sampling procedure (Heppner et al., 2008). This procedure increased the probability that the sample was representative of the desired target population, in this case, students with disabilities in higher education. Students who were specifically registered with disability support services offices were the target population because they had been through an eligibility determination procedure that ensured they had a disability and were eligible for services and accommodations in college. To increase the generalizability of the sample, students were recruited from institutions of higher education nationwide (Heppner et al., 2008). Participants were contacted with the help of the DSS offices at postsecondary institutions. An a priori power analysis revealed a sample of 107 participants would produce the minimum desired effect size (medium = .15; Tabachnick & Fidell, 2007). At the end of

survey administration 178 respondents completed the on-line survey. Following data screening and cleaning procedures 145 surveys met the criteria for survey inclusion and analyses.

Procedure

Contacting DSS professionals was accomplished with the assistance of the Association on Higher Education and Disability (AHEAD; the professional association for the DSS profession), which gave the investigator permission to recruit through its AHEAD ALERT newsletter (Appendix A). The newsletter is disseminated to the entire AHEAD membership and was intended to convey information of interest to DSS professionals. Unfortunately, no DSS professionals elected to respond to the announcement. In addition to the AHEAD membership, DSS professionals also received the recruitment invitation letter via the Disability Support Services in Higher Education listserv (DSSHE-L) maintained by the State University of New York at Buffalo. This recruitment effort was more successful, and resulted in the participation of seven schools.

The investigator also contacted several DSS professionals in the field with whom she had a relationship. Out of ten such contacts only DSS professionals at two universities responded. One of these agreed to pass along the survey to students at their main campus, as well as to those at their branch campuses. As result, student participation was received from seven of this university's branch campuses. In the case of the other school that responded to personal contact, the school's Institutional Review Board (IRB) required an external researcher to complete their IRB process in order to survey their students. Due to the length of an IRB review process this university was eliminated from consideration for student participation. In addition to the direct contact

efforts, the primary investigator utilized her network of faculty members at colleges and universities who might have contacts with their DSS offices. These contacts resulted in responses from three more university DSS offices. At survey completion, students from 16 colleges or universities had participated in the study (Table 2).

Once contacted by a DSS professional, the investigator sent a return e-mail describing the nature of the study and asking them to forward an e-mail (provided in the correspondence) to students registered with their office (Appendix C). If the DSS office did not possess the ability to contact students by mass e-mail, a flyer was attached to the initial contact e-mail. The flyer contained the same recruitment information as the email invitation and also provided the survey Internet address (see Appendix B). The DSS professionals who were unable to forward the e-mail study invitation were asked to print the flyer and post it in a common area within view of their students. None of the DSS offices expressed difficulty with contacting their students via email.

DSS professionals who opted to pass along the survey to their students were asked to email the primary investigator to inform her of their participation and the school they represented. DSS professionals who assisted with dissemination of the survey were informed they were not to actively recruit student participation nor answer any questions regarding the study. All questions regarding the investigation were directed to the primary investigator or the supervising faculty member.

The survey link included a description of the study and implied informed consent information, instructions for survey completion (Appendix D), and the survey instrument (see Appendices E-H; SACQ removed from appendices due to copyright restrictions for reprinting). Due to the relatively long length of the survey (137 items; Heppner et al.

2008) an incentive for participation was offered to participants. In exchange for their participation, respondents who completed the survey were invited to enter a raffle for a chance to win one of ten \$25 gift cards to Amazon.com. Once they completed the survey students were directed to send an email to a separate email address provided and simply write “raffle” in the subject line. No other identifying information was sought from participants and no one other than the primary investigator had access to the raffle submission emails. At the completion of survey administration, 124 survey participants elected to participate in the raffle incentive. At survey end, the primary investigator used the random number generator in SPSS to randomly select ten “winners” from the email raffle pool. A message was sent to the 10 emails provided by the raffle winners and information was provided about redemption of the \$25 electronic gift card from Amazon.com. Following delivery of the gift card to the ten winners, all identifying participant information (i.e., email addresses) was destroyed.

Measures

Demographic information. A demographic questionnaire was developed for the study (see Appendix E). This questionnaire solicited information on participant sex, age, year in college, disability type, age diagnosed, race/ethnicity, type of disability, college or university they attended, whether they were attending a two or four-year college/university, whether they had transferred from another school and the reason if applicable, their grade point average, semesters of college completed, whether they were registered with their DSS office, and how many semesters they had used DSS services. A few of these last items were included to increase the possibility that the data reflected only students registered with their respective DSS offices who were 4-year, bachelor’s

degree seekers. Disability categories reflected those used by the National Postsecondary Student Aid Survey (NPSAS; Wei & Berkner, 2008). The 11 categories included (a) mental, emotional, or psychiatric condition/depression; (b) Attention Deficit Disorder; (c) orthopedic or mobility impairment; (4) specific learning disability/dyslexia; (5) hearing impairment; (6) health impairment or problem; (7) blindness or visual impairment; (8) speech or language impairment; (9) brain injury; (10) developmental disability; and (11) other. The NPSAS disability categories were selected because demographic information collected for the NPSAS longitudinal study (NPSAS, 2000; 2004; 2008) was based upon student self-report of disability. Other national longitudinal studies such as the National Longitudinal Transition Study-2 (NLTS-2; Newman, Wagner, Cameto, & Knokey, 2009) and the Educational Longitudinal Study of 2002 (ELS; Ingels, Pratt, Wilson, Burns, Currivan, Rogers, & Hubbard-Bednasz, 2007) used secondary school records to identify student disability category and have yielded somewhat different postsecondary disability distribution findings from the NPSAS (Wei & Berkner, 2008). Since the current study used self-report findings, the NPSAS categories served as an efficient and accurate basis of comparison for the current study.

Postsecondary Student Survey of Disability-Related Stigma (PSSDS).

Recognizing a lack of information about and instrumentation to measure disability related stigma in a postsecondary setting, Trammell (2006, 2009) developed the PSSDS to assess perceived stigma on college and university campuses (see Appendix F). The PSSDS can best be described as an instrument in its infancy. Trammell (2006) developed the items for the PSSDS based upon a review of the literature, qualitative interviews with three college students with self-disclosed learning disabilities, feedback from DSS personnel,

and careful study of established instruments that measure race related stigma. Once the 24 item measure was created, a pilot study was conducted with students with disabilities registered with the disability support services office at a small private college and a community college. Students were asked to rate college experiences that could be affected by stigma on a five-point Likert-type scale (0 = *never*, 1 = *occasionally*, 2 = *regularly*, 3 = *frequently*, 4 = *all the time*). Data from the pilot study provided information about the appropriateness of the items, time needed for administration, practical logistics of survey administration, and whether the instrument measured a univariate or multivariate construct. Exploratory factor analysis (EFA) from the pilot study provided some support for a seven-factor model. Further scrutiny of the EFA concluded with the adoption of a five-factor model (Trammell, 2006).

Following the pilot, another study was conducted with students registered with the DSS office at a large public university. Due to a small response rate in the follow-up study, an aggregate from the pilot and follow-up study was used to perform another EFA. A five-factor model was supported from the aggregate data. The five factors for the PSSDS are Personal Feelings, Global Events, Academics, Group Identity, and Personal Relationships. Cronbach's alpha coefficients for the subscales from the pilot and follow-up studies were Personal Feelings (.74, .75), Global Events (.62, .67), Academics (.44, .66), Group Identity (.72, .61), and Personal Relationships (.75, .75; Trammell, 2006).

In an additional study on the PSSDS, the results of a confirmatory factor analysis found the measure to conform to a four-factor model (Trammell, 2009). These factors were academic success (AS), quality of peer relationships (PR), measurable sense of self-identity (SS), and global awareness and/or concern about accommodations and disability-

related issues (GA; Trammell, 2009). Examples of items from the PSSDS include “students with disabilities don’t receive as many opportunities as those without disabilities,” and “teachers view me as having a shortcoming.” Half of the items on the PSSDS are reverse scored yielding a total range of scores from 0 to 96, with higher scores indicating greater levels of perceived stigma. In both studies, students with visible disabilities scored higher on the PSSDS, meaning they perceived experiencing more stigma as a result of their disability (Trammell, 2006, 2009) The Cronbach’s alpha coefficient for internal consistency for the PSSDS was .80 (Trammell, 2009). Cronbach’s alpha coefficients for the subscales were not reported in the 2009 study.

In October 2010, PSSDS creator Dr. Jack Trammell was contacted. An inquiry was made as to whether Cronbach’s alphas were calculated for the 2009 study. Dr. Trammell confirmed that the subscale alphas were not explored for the follow-up study. He reiterated the subscale alphas from the original study performed for his dissertation (J. Trammell, personal communication, October 15, 2010). The PSSDS was used in this study to assess perceived stigma on a college campus for students with disabilities. Since only the total score for the PSSDS was used for this study only the total Cronbach’s Alpha was calculated. The Cronbach’s Alpha coefficient for internal consistency for the current study was .78.

Adaptation to Disability Scale-Revised (ADS-R). From 1971 until 2007 acceptance of disability was largely measured with the widely used Acceptance of Disability Scale (AD; Linkowski, 1971, 1987). The AD was normed with adults with physical disabilities in two studies. The first study involved 46 participants who were in the evaluation and planning phase of vocational rehabilitation at a comprehensive

rehabilitation center (Linkowski, 1987). The second study involved 55 college students with physical disabilities. The initial reliability of the AD was explored using a split-half analysis that resulted in a correlation of .86. In addition, a Spearman-Brown prophecy formula found the full-scale reliability to be .93 (Linkowski, 1971).

Intuitive evidence for the construct validity for the AD was found in the initial studies since the college students scored significantly higher on the AD than adults with physical disabilities in the early phase of vocational planning. In addition, scores on the AD were found to correlate with self-esteem satisfaction with social relationships. Concurrent validity for the AD scale was explored through an administration of both the AD scale and the Attitudes Toward Disabled Persons Scale-Form B (ATDP-B). The ATDP-B measures the attitudes of people with and without disabilities toward people with physical disabilities. For the sample of people with disabilities in vocational planning, the correlation between the AD and the ATDP-B was .81 (Linkowski, 1987). Factor analysis with the AD scale revealed that the AD measured a unidimensional construct. Linkowski (1987) cautioned that “since these factor analyses were computed on small samples relative to the number of variables, the results can only be regarded as tentative” (p. 2).

In 2007, Groomes and Linkowski revised the AD to update the language to be consistent with current usage, modified the rating scale, completed an item reduction analysis, and performed a confirmatory factor analysis. The revised scale, the Adaptation to Disability Scale-Revised (ADS-R), contains fewer items (50 to 32), consists of a four factor structure, uses “person first” language, and uses a forced choice 4-item Likert-type scale ranging from 1 = *low acceptance* to 4 = *high acceptance* (see

Appendix G). The range of scores for the total scale is 32-128. Higher scores on the ADS-R represent higher levels of acceptance of disability. The original measure was normed with adults with disabilities in rehabilitation and college settings, and the sample for the revision study was drawn from adults with disabilities in Independent Living Centers, two public rehabilitation service agencies, and a university disability resource center (Groomes & Linkowski, 2007). Items on the ADS-R include “a person with a disability is restricted in certain ways, but there is still much s/he is able to do,” “because of my disability, other people’s lives have more meaning than my own,” and “there are times that I completely forget that I have a disability.” Twenty-two items on the ADS-R are reversed scored (Groomes & Linkowski, 2007).

The four subscales of the ADS-R correspond to the four areas associated with the original theory developed by Dembo et al. (1956). These include Enlargement of Scope of Values, Subordination of Physique, Containment of Disability Effects, and Transformation from Comparative Values to Asset Values. In the ADS-R these factors were maintained and relabeled Enlargement, Subordination, Containment, and Transformation. These subscales received Cronbach’s alpha coefficients ranging from .71 to .88, with a total alpha for the measure of .93 (Groomes & Linkowski, 2007). The ADS-R was used in this study to assess Acceptance of Disability. Since only the total score for the ADS-R was used for the current study, the Cronbach’s Alpha coefficient for this study of .93 reflects only the assessment total score for internal consistency.

Student Adaptation to College Questionnaire (SACQ). Adaptation to college was measured by the Student Adaptation to College Questionnaire (SACQ; Baker & Siryk, 1999). The SACQ is a 67-item measure normed on a university student population

that provides both a total score and four subscale scores (see Appendix H). The four subscales are Academic Adjustment, Social Adjustment, Personal-Emotional Adjustment, and Institutional Attachment. Participants are instructed to indicate their agreement with statements rated with a 9-point Likert scale ranging from 1 (*applies very closely to me*) to 9 (*does not apply to me at all*). The scores produced by the SACQ range from 67 to 603; the measure was reported to take approximately 20 minutes to complete. Higher scores on the measure represent better overall adaptation to college. Examples of items on the SACQ include “getting a college degree is very important to me,” “my academic goals and purposes are well defined,” “I am finding academic work at college difficult,” and “I feel that I fit in well as part of the college environment” (Baker & Siryk, 1999).

Instrument creators Baker and Siryk (1999) stated they believed the constructs measured by the SACQ were vulnerable to changes in the college environment and stated they did not believe the variables measured were stable. They also stated that test-retest measures of reliability were an insufficient measure of the SACQ reliability. Reliability was measured, therefore, for internal consistency only. In subsequent studies the subscales of the SACQ produced Cronbach’s alpha coefficients for Academic Adjustment (.85 to .91), Social Adjustment (.83 to .91), Personal-Emotional Adjustment (.77 to .86), and Attachment (.85 to .91), and .92 to .95 for the full scale (Baker & Siryk, 1999).

Factor analysis was performed on the SACQ to determine whether the instrument supported a single construct or a multidimensional construct with distinct subscales. The factor analysis and principle components analysis supported a four-factor model of student adaptation to college. These factors were labeled Academic Adjustment, Social

Adjustment, Personal-Emotional Adjustment, and Institutional Attachment (Baker & Siryk, 1999).

Several studies have established the concurrent validity of the subscales of the SACQ. Positive correlations were identified, for example, between the Academic Adjustment scale and academic standing, grade point average, and election to an academic honor society. The Social Adjustment scale was found to positively correlate with the number of extra-curricular activities, job offers for residence hall positions, and a social activities checklist. A negative correlation was found between social adjustment and the number of visits home taken by the student. Correlations were identified between the Personal-Emotional Adjustment subscale and the student being known to the counseling center on campus. The Institutional Attachment subscale was significantly positively correlated with overall college satisfaction and negatively related to student attrition (Baker & Siryk, 1999).

Concurrent validity was also established for the overall measure and factors that logically related to student adaptation to college. The overall SACQ was positively associated with self-esteem, emotional independence, locus of control, and psychological coping. The SACQ was negatively related to loneliness, social avoidance, psychological distress, self-concept, and social distress. Significant relationships were also found between the SACQ and the measures Life Experiences Survey, FACES II, Family Structure Survey, Adolescent Hassles Scale, Interview Schedule for Social Interaction, Psychological Distress inventory, and Social Support and Life Events Check-List (Baker & Siryk, 1999). The SACQ was used in this study to assess adaptation to college for students with disabilities.

Other considerations for study measures. The four measures used in the current study were administered to participants using an on-line survey tool called SurveyGizmo (SurveyGizmo, 2010). SurveyGizmo was selected because it is the most accessible on-line survey tool on the market (The Ohio State Web Accessibility Center, 2008). In a study that compared six commonly used on-line survey tools, The Ohio State Web Accessibility Center (2008) found that SurveyGizmo was compliant with Section 508 of the Rehabilitation Act of 1973, which legally requires that all technology be accessible to users with disabilities. SurveyGizmo was found to be compatible with screen magnification, screen reading, font enlargement, and high-contrast rendering. They found SurveyGizmo to have the best visual clarity, contrast, and organization. In addition, SurveyGizmo can be navigated and responded to with keystrokes only (The Ohio State Web Accessibility Center, 2008).

The constructs *perceived stigma*, *acceptance of disability*, and *adaptation to college* were measured with instruments that used Likert-type scales. In the social sciences Likert-type scales are frequently measured and analyzed using interval or ratio scales of measurement (Salkind, 2006). When using a Likert-type scale the summated data is generally treated as interval/ratio data. For the purposes of analysis, interval/ratio data is assumed to have equal intervals between adjacent response points (equal interval between 1 and 2, 2 and 3; Salkind, 2006). There is some debate, however, that Likert-types scales cannot ensure that the intervals between response points are truly equal (Sirkin, 1999). In such cases, Sirkin (2006) recommends that the data be treated as “approaching” interval/ratio data and analyzed as if these data are true interval/ratio

scales, but interpreted with caution. Since the study was dependent on measures utilizing Likert-type scales the data produced was treated as approaching interval/ratio data.

The three instruments used to measure the research constructs for the study (i.e., PSSDS, ADS-R, SACQ) were intended to be counterbalanced. Counterbalancing involves producing several versions of the survey, each with different sequences of instruments (e.g., PSSDS, ADS-R, SACQ; ADS-R, SACQ, PSSDS) The reason for counterbalancing instruments is to control for a threat to internal validity called order effects (Ary, Cheser Jacobs, & Razavieh, 2002). Order effects could produce survey results specifically influenced by the order or sequence participants responded to items and/or measures. Counterbalancing, however, was not possible for this study, due to limitations within the on-line survey tool (SurveyGizmo). Although randomization of pages is a function available to survey creators using SurveyGizmo, pages needed to be relatively short (no more than ten items), otherwise survey participants would lose the Likert scale reference at the top of the page. The primary investigator inquired with SurveyGizmo technicians as to the possibility of randomizing by specific assessment rather than by page. They responded that this was not a function currently available on SurveyGizmo, but would take this suggestion in consideration for future improvements to SurveyGizmo. The importance of keeping the pages shorter (8 items per page) and retaining the integrity of the four assessments in the survey trumped the benefits of counterbalancing in this study; therefore, counterbalancing was not used for this study.

Purpose of the Study and Research Questions

The purpose of the study was to explore variables that might lend a better understanding of the relationship between perceived stigma, acceptance of disability, and student adaptation to college for students with disabilities. The conceptualization and analysis of these variables also allowed an understanding of the combined relationships of perceived stigma and acceptance of disability on student adaptation to college. As such, the following research question was developed to explore these relationships.

Research Question: What is the combined contribution of perceived stigma and acceptance of disability on adaptation to college for students with disabilities?

Null hypothesis: There will be no statistically significant linear relationship between the combined relationship of perceived stigma and acceptance of disability on adaption to college for students with disabilities.

Alternative hypothesis: As students with disabilities' perception of stigma and acceptance of disability increases, a greater amount of variance in adaptation to college will be explained.

Analysis: Hierarchical multiple linear regression. The dependent variable was the student adaptation to college score (derived from the SACQ total score) and the independent variables was the total scores for perceived stigma (PSSDS) and acceptance of disability (ADS-R).

CHAPTER 4

RESULTS

In this chapter, the pre-analysis procedures necessary to use certain parametric statistical tests are outlined. Findings of descriptive data analysis are presented for the four assessments included in the survey (demographic, PSSDS, ADS-R, SACQ). Lastly, results of the inferential statistical analyses are presented in relation to the research questions outlined in Chapter Three.

Pre-analysis Procedures

The on-line survey administration spanned six weeks during the months of September and October of 2010. The logical first step in the pre-analysis process was to prepare the statistical analysis software Statistical Package for the Social Sciences version 16 (SPSS 16) for the data from this study; this procedure involved creating a codebook in SPSS 16 to store and analyze the data produced for the study (Sprinthall, 2009). In the next step, the SPSS data file (SPSS 16.0) was downloaded from the SurveyGizmo account. Perusal of the variables in the data set revealed that all variables present in the survey were reflected in the data file. Next, the data were re-coded from the default categorical labels supplied by SurveyGizmo to a more meaningful numerical system reflecting the Likert-type scales used in the survey (e.g., 1-4, 1-5, 1-9). Next, a frequency report was generated in SPSS for each variable in the data set. The frequency report aided the inspection of the data for missing data, amount of data missing, whether missing data appeared to conform to a particular pattern, miscoded data, and whether any data points (values) were outside the range of scores theoretically possible for each measure.

At the close of the survey administration period, students from 16 colleges or universities participated in the study (Table 2). All 16 schools were located in the Northeast or Midwestern United States and represented five different states (Illinois, Indiana, New York, Pennsylvania, and Wisconsin). Most schools, however, were located in Pennsylvania. Twelve schools were public and four were private, while three were religiously associated (Catholic, United Methodist Church). All 16 were coeducational and represented a wide range of undergraduate enrollment from 2,423 to 38,594 students.

At the completion of survey administration, 178 participants had completed surveys, 58 had abandoned the survey after seeing the first page (Informed Consent Letter), and another 82 had left the survey after proceeding beyond the first page, but did not complete enough of the survey to be considered in the final participant pool. Several questions in the demographic questionnaire were included to determine if participants represented the target population. These items included information about the type of degree being sought (seeking 4 year bachelor's only), class standing (seeking undergraduates only), and whether they were registered with their school's DSS office (seeking registered students only). Out of the 178 completed surveys, 20 participants were graduate students and four were two year associate degree seeking students. In addition, one participant reported being both a graduate student and participating in a two year associate program. All 25 of these respondents were eliminated from consideration in the final participant pool. In addition, another three participants were not registered with their institution's DSS office and were also removed from the participant pool. Two more cases were removed for an excessive amount of missing data. One of these cases

was missing data for all 32 items for one of the variables and the other was missing data for 33% of the same scale (ADS-R scale). Lastly, three additional cases were removed due to the presence of major outliers. These cases contained data that were 2.5 standard deviations from the mean and were found to be exerting undue amounts of leverage on the data set (Tabachnick & Fidell, 2007). In sum, 33 cases were removed from the original completed survey yield of 178, bringing the final usable participant pool to 145.

The final 145 completed surveys were used to perform the statistical tests needed to address the research question. These questions dictated that the most appropriate statistical analysis was multiple linear regression (Licht, 1995; Tabachnick & Fidell, 2007). In addition, close examination of the data revealed the data clearly adhered to three blocks of information (demographic, college information/characteristics, principle variables) and a logical temporal sequence was observed. As a result, it was determined that another type of multiple regression analysis be undertaken, hierarchical multiple regression (Field, 2009). Before this exploratory analysis was undertaken, data screening procedures were performed to ensure the data were relatively complete and were an appropriate fit for hierarchical multiple regression analysis (Hinkle, Wiersma, & Jurs, 2003).

Following data inspection procedures the next consideration was how to resolve missing data issues. This involved inspecting missing values and determining how much data were missing and then making a decision as to the disposition of these data. Although there is no definitive agreement as to an acceptable response rate for the analysis of data for a variable, 80% is considered a commonly used rate (Johnson & Owens, 2003; Tabachnick & Fidell, 2007).

Tabachnick and Fidell (2007) provide a checklist for data screening.

They suggest perusal of the descriptive statistics for accuracy of input, values that are out-of-range, that the means and standard deviations are plausible, and whether any outliers were present. In the case of these data, all values were within the possible theoretical range for the instruments utilized in the survey and all means and standard deviations were plausible. Three major outliers were identified and removed from the data set. In the case of these outliers, all three were located 2.5 deviations or more from the sample mean. All three were found to be influencing the line of best fit for the data and exerting excessive leverage. Removal of these outliers significantly improved the “fit” of the data and increased the magnitude of the relationships found in the analyses. They suggest the detection of the number and distribution of missing data, and make a decision as to how to correct the problem. The first step in this procedure is to determine if data is “missing at random” (MAR; Rubin, 1976). In essence, MAR means that no specific pattern in missing data exists. In essence, participant non-response was not restricted to certain items or assessments consistently. Using the SPSS explore function, missing data in the data set were found to be MAR. In terms of decisions regarding excessive missing data, a review of the literature on this determination revealed there is no consensus as to the appropriate cut-off for percentage of missing data. Johnson and Owens (2003) reported that an 80% response rate for a variable is considered to be acceptable; however, no specific percentage is required. For this study, greater than 20% missing data for any survey item or assessment within the survey was set as the upper bound for non-response. For the current study, two cases were deemed to have excessive missing data and were removed from the data pool. One of these had no data for an entire

assessment (32 items) and the other was missing a third of the data for the same instrument (ADS-R).

Next, Tabachnick and Fidell (2007) suggest inspection of the pairwise plots for linearity and homoscedasticity. The pairwise plots and statistics for linearity and homoscedasticity were examined and the author found the data to be linear and the error to be constant (random). Following inspection of the pairwise plots, they recommend locating and addressing variables that are not normal, examining skewness and kurtosis and probability plots, performing variable transformation if needed, and confirming the results of any transformations performed. The skewness and kurtosis values for all interval scale variables in the data-set were examined and determined to be within acceptable parameters. In addition, histograms, scatter plots, curve estimation, and probability plots were generated for the variables and were found to meet the assumptions of normality and linearity.

Next, Tabachnick and Fidell (2007) advise multivariate outliers be located and dealt with, identification of the variables that are causing multivariate outliers, and description of the outliers. In the case of study data, three cases were removed due to major outliers. These cases had datum that fell 2.5 standard deviations from the mean. In addition, these data points were applying leverage on the data set. They recommend next assessing data multicollinearity. For study data, tolerance and variance inflation statistics were generated for each variable used in the regression analysis and were found to be within acceptable parameters (i.e. tolerance greater than .2; VIF less than 4.0).

In the case of missing data for surveys retained in the analysis, data imputation methods needed to be applied. The first step in this process used the SPSS “Explore”

command to produce descriptive data that included interval data indicators of variation and central tendency. This step provided a baseline for these data to ascertain whether any imputation procedures undertaken would significantly change the descriptive data for these variables. In the cases of the two principle independent variables (PSSDS, ADS-R) no recommendations from the instrument creators were offered in regard to missing data procedures specific to these instruments. In the case of the SACQ, two items (26, 33) instructed participants to leave them blank if the question did not apply. Both questions pertained to dormitory living and quality of roommate relationships, respectively. Instrument authors Baker and Siryk (1999) recommended that missing data for these items be replaced with the mean for the item. In SPSS the “replace missing data” function was used to create a new variable for SACQ items 26 and 33, replacing missing items with the item overall mean.

For the remainder of missing data for the SACQ and the missing data for both the PSSDS and the ADS-R, two types of data imputation were attempted and examined for changes in the descriptive statistics. First missing data was replaced with the mean for the respective item (Tabachnick & Fidell, 2007). The descriptive statistics were then requested for the “new” variable and the statistics for variability and central tendency were again examined and recorded. Next, the procedure was repeated with a linear multiple regression interpolation data imputation procedure (Tabachnick & Fidell, 2007). The descriptive statistics were once again produced and the statistics of variability and central tendency were reexamined. In all cases the linear multiple regression interpolation procedure produced “better” statistics for variability and central tendency for the data. Once all missing data had been replaced, a total score for the three instruments was

calculated using the SPSS Calculate function. These three variables were labeled SACQ_TOTAL_1, PSSDS_TOTAL_1, and ADS_TOTAL_1 respectively, and were then appropriate for the next step in data cleaning.

Upon completion of missing value replacement, identification of significant outliers was conducted. This process involved producing box and whisker plots for the total score from the two principle independent variables and the dependent variable. In a box and whisker plot minor outliers are identified by a small circle and major outliers by an asterisk. A major outlier is a data point that is 2.5 standard deviations or distal from the mean (Tabachnick & Fidell, 2007). For both indicators a number identified three outlying cases. The presence of these major outliers demanded a determination, if possible, as to the cause of the outlying score. In the case of the three outliers it was determined the outliers were occurring at random, or were not due to something in the data collection process. It was likely due to something specific to the respondent that was not captured by the variables of research interest. In all three cases, it was determined that these data were inordinately influencing analysis of the data. To make this determination a test of the influence of an outlier was performed. This test is called a Cook's Distance. A Cook's Distance test determined that the outliers were exerting undue influence on the data (Tabachnick & Fidell, 2007). Hair, Black, Babin, and Anderson (2010) recommend that every observation be retained unless there is evidence to suggest that the outlier is not representative of the population being studied. In the case of the three outliers it was determined that these cases were not representative of the population and were, therefore, removed from the data set.

Once outliers were identified and properly dealt with, total scores for the three variables were assessed for the assumption of normality. This assumption was diagnosed using two techniques. The first was visual inspection of a histogram of the data. The second was examination of the skewness and kurtosis values for the variables of research interest. Skewness and kurtosis values are indicators of the normality of the distribution of interval/ratio data. The assumption of normality is an important consideration when determining whether a multiple regression analysis can be used with a data set (Licht, 1995). These statistics were calculated for each of the variables included in the survey. Acceptable levels of skewness for a variable should not be outside -2 to +2 (Hair et al., 2010). Any values outside of this range are a threat to the accuracy of any future analysis and would prompt questions about the generalizability of the findings to the broader population beyond those sampled for the study (Field, 2000). In the case of the current study data, all skewness levels fell within acceptable parameters.

Kurtosis values should not exceed ± 10 , and neither the skewness nor kurtosis values should be 2.5 times or more than the standard error for the distribution. If either score falls outside these established markers the assumption of normality will be violated (Kline, 1998; Morgan & Griego, 1998). In the current study data, kurtosis values fell within acceptable parameters and both skewness and kurtosis levels were less than 2.5 times the standard error for the distribution.

To test the assumption of linearity and homoscedasticity (or constant variance), pairwise scatter plots of the residuals for each independent variable on the dependent variable were produced and inspected. Linearity refers to a pattern of data that conforms fairly closely to a line. This line may be positive (lower on the left and ascending to the

right) or negative (lower on the right side of the graph and ascending to the left).

Essentially, the line should visually represent a mathematic covariance where a change in X will result in a discernable change in Y (Tabachnick & Fidell, 2007).

Homoscedasticity is assumed in analyses such as a multiple regression analysis where a relatively consistent pattern of error should be present in the data. Visual inspection of the scatter plots revealed a shape that resembled a football. Scatter plots that depict too many or too few residuals above or below the line of best or that reveal a shape very different from a football can be problematic to any multiple regression analysis. Any asymmetry in this regard might indicate problems with the representativeness of the sample and/or problems with the variable instrument (Licht, 1995). Based on inspection of the scatter plots, the assumption of homoscedasticity was met for study data.

Following procedures used to assess the assumptions, data were assessed for the presence of multicollinearity and singularity. Multicollinearity is a problem created when independent variables are too highly correlated with one another. Singularity occurs when one of the variables is actually a combination of at least two other variables (Tabachnick & Fidell, 2007). Both multicollinearity and singularity create problems because they contain redundant information. In addition, this redundancy will increase error terms; the increased error terms would have caused any analyses to be anemic. Multicollinearity was assessed using bivariate correlation, and the collinearity statistics variance inflation (VIF) and tolerance. When multicollinearity occurs, the researcher must decide whether to remove one or more variables or to sum or average the scores to create a composite variable (Tabachnick & Fidell, 2007).

Singularity was diagnosed by simply running the desired analysis. Unless a principle component analysis is being performed, the analysis software will halt. If this occurs, the investigator needs to reexamine the data to determine if the conditions for singularity exist in the data, and a decision would need to be made as to a logical remedy for the situation. This outcome would, generally, involve removing of one or more of the variables in the analysis (Tabachnick & Fidell, 2007). In the case of study data, the analysis software (SPSS 16.0) did not falter during the analytic procedures, indicating singularity did not exist in the data set.

The diagnostic screening procedures revealed that these data met the assumptions of a multiple linear regression (normality, linearity, and homoscedasticity). In addition, issues related to the impact of missing data, leverage, multicollinearity, and singularity were identified and decisions were made as to the impact of these data (Sprinthall, 2009; Tabachnick & Fidell, 2007). Once data were satisfactorily screened, a hierarchical multiple linear regression analysis was performed. Before the analysis was performed descriptive statistics were generated for demographic and college characteristics of the sample population.

Profile of Participants

Results of a descriptive analysis (Table 1) revealed that of the 145 participants, 38% were male ($n = 55$) and 62% were female ($n = 90$). The average age of the participant pool was 22-years-old with an age range between 18 and 53. Eighty-six percent of respondents were between ages 18 and 23. The majority of participants were upper classmen (60%) with 51 participants in their senior year in college (35%), and 36 in their junior year (25%). Lowerclassmen comprised 40% of participants with 28

sophomores (19 %) and 30 freshmen (20%). Most participants were Caucasian (90%, $n = 131$). Another 3% were African-American ($n = 4$), 3% Asian American ($n = 4$), 1.4% were Latino ($n = 2$), 1.4% reported “other” for race/ethnicity ($n = 2$), and .7% were Native American ($n = 1$) and multiracial/biracial ($n = 1$).

In terms of disability background (Table 2), 22% had a Specific Learning Disability or dyslexia ($n = 32$), 16% had Attention Deficit Disorder ($n = 23$), 17% reported “other” for disability type ($n = 25$), 15% had a mental, emotional, or psychiatric condition ($n = 22$), 8% had an orthopedic or mobility impairment ($n = 12$), 5% reported having a developmental disability ($n = 7$), another 5% had a Health Impairment ($n = 7$), 4% reported having a brain injury ($n = 6$), another 2% had blindness or visual impairment ($n = 3$), and 1% had a speech or language impairment ($n = 2$). Initial perusal of the age of disability diagnosis/onset variable revealed an out-of-range score for one case. The age of disability diagnosis for this 22-year-old respondent was reported as 66. To accurately calculate the descriptive statistics for this variable, this case was removed. For study participants the average age of disability diagnosis was 11 years old with a range of reported diagnoses/onset ages from birth to 41.

To better understand the influence of college characteristics, participants were separated into categories reflecting the differences in college/university, size, regional affiliation, and public/private status (Table 2). Fifty-six participants (39%) were enrolled in a college/university with an undergraduate enrollment of less than 10,000 and 89 participants (61%) were enrolled in colleges/universities with an undergraduate enrollment of greater than 10,000. Eighty participants (55%) were from schools in the Northeast, while 65 participants (45%) were from institutions in the Midwest. Of the 145

participants, 107 (74%) attended public postsecondary institutions, while 38 (26%) attended private schools.

All 145 participants were attending a four-year college or university and pursuing a bachelor's degree. Twenty-eight percent of participants had transferred from another institution to their present school ($n = 38$), while 74% of participants had been enrolled with their present school throughout their postsecondary education ($n = 107$). The average GPA for study participants was 3.22 with a range of GPAs (0.0 for first semester freshmen to 4.0). On average, participants had completed 4.4 semesters of college with a range of semesters completed from 0 to 27. All 145 respondents were registered with their respective DSS offices with an average of 3.6 semesters in which they utilized DSS services. The range of DSS usage by semester was 0 to 24.

Statistical Analyses

Multiple regression analysis is a close but more powerful relative of bivariate regression correlation. In bivariate correlations the analysis contains only one independent and one dependent variable (Licht, 1995). Multiple linear regression analysis, however, was developed to be a more robust analysis designed to detect the predicted relationships of more than one independent continuous variable on a single continuous dependent variable (Tabachnick & Fidell, 2007). In the case of this study the independent variables were perceived stigma (PSSDS) and acceptance of disability (ADS-R). The dependent variable, adaptation to college, was derived from the full-scale score of the student adaptation to college questionnaire (SACQ). There are several types of multiple regression analyses (Field, 2009). These different types still accomplish an understanding of predicted relationships, but use somewhat different tactics to decipher

these relationships (Tabachnick & Fidell, 2007). Hierarchical multiple regression analysis is one such method (Field, 2009).

Hierarchical multiple regression (or sequential multiple regression) performs multiple regression analyses in predetermined steps (Field, 2009). The decision to perform a hierarchical multiple regression rather than a simultaneous multiple regression analysis is determined by the researcher and influenced by the data at hand (Tabachnick & Fidell, 2007). In such cases, the data adhere to a theoretical order (hierarchy) or fall into logical groupings (Field, 2009). In the case of this study, data clearly conformed to three groups of information: demographic, college information/characteristics, and principle independent variables, and conformed to a logical temporal sequence. These variable “blocks” were entered one at a time in data entry “steps.” Each step created a new model and corresponding information on the relationship between the entered variable block and the outcome variable (SACQ). At each step another block was added to the previous step creating a larger model (more variables) at each level (Field, 2009). The purpose was to methodically understand variable contributions at each level of the “stepping” procedure. Essentially, the purpose of a hierarchical regression analysis procedure is to determine whether a variable or block of variables adds to the model at its point of entry (Tabachnick & Fidell, 2009).

Data can be entered according to a theoretical hierarchy with variables of greater importance entered first and lesser variables entered at later steps (Field, 2009). If no theoretical justification for variable entry exists, variables can also be stepped in according to a belief that certain variables are likely to be of lesser importance. These

variables are entered first (Model 1) and then each successive variable block is evaluated against the less important set (Tabachnick & Fidell, 2007).

Three models (blocks of variables) were used for the data from the current study and summary statistics were produced for the third and final model. In the case of the analyses for this study, the hierarchical procedure produced curious findings that suggested that mediation might be present in the model. A test of mediation was, therefore, undertaken to better understand this potential relationship (Baron & Kenny, 1986).

In cases where there is no theoretical contradictory evidence of mediation or contradictory evidence of such a relationship among variables, a test of mediation is performed (Baron & Kenny, 1986; McKinnon, Warsi, & Dwyer, 1995; Preacher & Hayes, 2004). This procedure is known as the Sobel method and involved several steps (Baron & Kenny, 1986; Sobel, 1982). The first step was to establish that the first independent variable (ADS-R) was correlated with the outcome variable (SACQ). The second step was to demonstrate a relationship between the first IV (ADS-R) and the second IV (PSSDS; potential mediator). Essentially, this treated the second IV (PSSDS) as if it were the DV. The third step involved using the first (ADS-R) and second IV (PSSDS) as predictor variables for the DV (multiple regression). If the second IV (PSSDS) still predicted the DV when the influence of the first IV was included, the magnitude of the relationship between the first IV (ADS-R) and the DV (SACQ) would drop (Baron & Kenny, 1986). This test can indicate no mediation, partial mediation, or full mediation of the test variables (Hoyle & Kenny, 1999). In addition to parametric analyses, attention was given to post hoc analyses. In this study, perceived stigma was

found to mediate the relationship between acceptance of disability and adaptation to college.

Data Recoding

In preparation for future analyses, several variables were re-coded. The purpose of this procedure was to create data that could be analyzed using a multiple regression analytic procedure (Tabachnick & Fidell, 2007). These data were re-coded into “0” or “1” and included “gender” (female = 0, male = 1) and “registered with DSS office” (no = 0, yes = 1). In addition, four other variables were re-coded to reflect a dichotomous division of these data. The purpose of this procedure was to produce data that could be analyzed with a multiple linear regression analysis. Multiple linear regression analysis is only capable of analyzing categorical data with no more than two levels (Tabachnick & Fidell, 2007). Independent variables with more than two categories must be recoded into two binary groups (“0” or “1”). In the case of this study one demographic variable (class standing) and three college/university variables required recoding. Class standing was re-coded from four categories (freshmen, sophomore, junior, senior) into two groups (lower classmen = “0,” upper classmen = “1”). College size was re-coded to reflect participants who attended colleges/universities with an undergraduate enrollment of 10,000 and fewer (“0”) or greater than 10,000 (“1”). The colleges and universities attended by participants in the study reflected two distinct national regions, Northeastern and Midwestern. The 16 schools represented in the data were, therefore, recoded into the groups Midwestern (“0”) and Northeastern (“1”). Lastly, schools in the participant pool represented both public and private postsecondary institutions. The 16 schools were re-coded into private (“0”) and public (“1”). Once recoded these variables were included in the preliminary analyses

to determine if these demographic or school characteristics made any contribution to student adaptation to college.

Results of Analyses

The next step in preparation for a multiple linear regression analysis is to calculate bivariate Pearson Product Moment correlations for all variables in the data-set (Tabachnick & Fidell, 2007; Table 3). In order to build a regression model that included the appropriate variables, inspection of the bivariate correlations revealed which variables might have the potential to contribute statistically to the dependent variable (Field, 2009). These variables produced relationships with the outcome variable (r close to .15 or greater) and either achieved statistical significance ($p \leq .05$) or close to significance ($p > .05 - p < .15$; Huck, 2008). In the case of study data, six variables achieved these criteria: age ($r = .126, p = .066$), GPA ($r = -.203, p = .007$), registered with DSS ($r = .153, p = .033$), college region ($r = .156, p = .031$), college public/private ($r = .09, p = .12$), PSSDS ($r = -.173, p = .019$), and ADS-R ($r = .283, p = .000$).

Hierarchical Multiple Regression Analysis (Sequential Multiple Regression)

In the case of the study data set, the independent variables logically conformed to three distinct blocks. These blocks were demographic, college characteristics, and principle variables. The first block in the hierarchical model was, therefore, demographic from which one of the variables (age) met the criteria for inclusion in the hierarchical model. The second block, college characteristics, yielded four variables that met the criteria for inclusion in the hierarchical model. These variables were GPA, registered with DSS, college region, and college public/private. The third block included the two principle variables of research interest, perceived stigma (PSSDS) and acceptance of

disability (ADS-R). These blocks were stepped one at a time and observations were made regarding their relationship with the outcome (SACQ) and their contribution to the variance explained (*R* squared) on the outcome.

In the first step (Model 1) participant age was entered into the hierarchical model (Table 5). In Model 1, age was not a statistically significant predictor of student adaptation to college (SACQ; Table 5). The *R* squared value for Model 1 was .016 (Table 5). The second step in the hierarchical procedure involved entering both the demographic variable (age) and the college characteristic variables (GPA, registered with DSS, college region, college public/private). In Model 2, none of the variables entered achieved statistical significance, although GPA came close to significance ($p = .06$; Table 5). Model 2 yielded an *R* square of .280 and an *R* square change of .063 (Table 5), and reflected a greater amount of variance explained by the second model. In the third step (Model 3), the variables from models one and two were once again entered in the model along with the two principle variables (PSSDS, ADS-R). With all variables entered in the third model, two variables achieved statistical significance, GPA ($b = -.220, p = .008, [CI = -.210, -.032]$; Table 5) and ADS_TOTAL ($b = .327, p = .002, [CI = .079, .343]$). Model 3 yielded an *R* square of .414 and an *R* square change of .093 (Table 5), representing a greater amount of variance explained in the outcome (SACQ).

The test of model significance (Table 6) revealed that Model 1 did not reach statistical significance ($F = 2.274, F[.05, 1, 143]; p = .134, p > .05$). Model significance statistics revealed that Model 2 achieved statistical significance ($F = 2.371, F [.05, 4, 139]; p = .04, p < .05$). In the third Model, tests of model significance revealed that the final model was statically significant ($F = 4.042, F [.05, 2, 137]; p = .000, p < .01$).

Sobel Test of Mediation

Since acceptance of disability and GPA were statistically significant in the hierarchical regression analysis, a test of mediation was performed to determine whether the relationship of acceptance of disability (ADS_R) and student adaptation to college (SACQ) was mediated by student GPA. Findings from a Sobel test of mediation found no significant mediation of GPA on acceptance of disability and student adaptation to college (Test statistic -1.47, SE = .045, $p = .145$). Closer examination of the bivariate correlations showed a significant relationship between acceptance of disability (ADS_R) and perceived stigma (PSSDS; $r = -.644$, $p = .000$). Like acceptance of disability (ADS_R), perceived stigma (PSSDS) also had a statistically significant relationship with student adaptation to college ($r = -.17$, $p = .05$). Due to the strong relationship between these two independent variables, a test of mediation was performed to explore whether the relationship between acceptance of disability (ADS_R) and student adaptation to college (SACQ) was mediated by perceived stigma (PSSDS). Results of a Sobel test of mediation found that statistically significant mediation existed between the two independent variables (ADS_R, PSSDS) on the dependent variable (Test statistic -3.29, SE = .036, $p = .000$).

Due to the presence of a mediating relationship between acceptance of disability (ADS_R) and perception of stigma (PSSDS) an interaction term was created for these two variables (Tabachnick & Fidell, 2007). This variable (ADS_PSSDS_itr) was then added to the final model (Model 3). When added to the model the new variable was not statistically significant. This finding was somewhat surprising given the strength of the

individual relationships between acceptance of disability and student adaptation to college, and perception of stigma and student adaptation to college (SACQ).

Collinearity Statistics

For the final model (Model 3) the collinearity statistics tolerance and variance inflation (VIF) were generated to determine if multicollinearity existed between any of the independent variables (Tabachnick & Fidell, 2007). Tolerance levels should begin to arouse suspicion when the value is .2 or less, however, it is generally accepted that a value of .1 or less is cause for greater concern. None of the tolerance values for the independent variables threatened these parameters. In addition, it is generally accepted that variance inflation should not exceed 4.0. The variance inflation values for all independent variables in the model did not exceed 2.0.

Durbin-Watson

The Durbin-Watson test statistic is an indicator of the assumption of independence of the residuals (Tabachnick & Fidell, 2007), and produces a value that indicates the degree to which the errors in the analysis are correlated with one another (Field, 2009). This statistic produces values ranging from 0 to 4, with a value of 2 indicating that the errors are not significantly correlated. Durbin-Watson values of less than two are an indication of a positive correlation between error terms, whereas a value greater than two is negative. Field (2009) suggests that values less than one and greater than three are undesirable. The Durbin-Watson value for Model 3 for this study was 2.052, indicating that the residuals for these data were uncorrelated.

P-P Plots and Scatterplot

To check the normality of the final model, expected normal probability plots (P-P Plot) and detrended normal probability plots were generated. In an expected normal probability plot, data points are sorted by rank and an expected normal value computed. These are then compared with the normal value for each case. If the distribution is indeed normal, the points will fall along a diagonal line from lower left to the upper right of the graph, and little deviation will occur along this line. The points for Model 3 closely corresponded with the diagonal with very little deviation. Unlike the expected normal probability plot, the detrended normal probability plot depicts the deviations from diagonal. In this plot the diagonal line is removed and a horizontal line is drawn (line of zero deviation from the expected normal values) in the middle of the plot. The desired result should display a relatively even distribution of points both above and below this line (Hair et al., 2010). The detrended normal probability plot for the data in Model 3 conformed to this distribution.

Cohen's d Effect Size Estimation

In most cases proper procedure would dictate the calculation of a post hoc effect size estimate. Effect size is, simply, the difference between two means, divided by the standard deviation of the two groups (e.g., treatment, control, or comparison groups; Thalheimer & Cook, 2002). The purpose of such a calculation, however, is somewhat more complicated. Effect size estimates, in essence, eliminate the emphasis placed on statistical significance by eliminating the undue influence of gaudy sample numbers. For this reason, effect size estimates are often cited as lending "practical significance" to study results (Tabachnick & Fidell, 2007). In addition, effect size estimates permit a more

accurate basis of comparison with past studies. Despite the growing call for researchers to provide post hoc effect size estimates, it has yet to receive universal acceptance (Thalheimer & Cook, 2002). As a result, very few researchers provide effect size estimates in study results. Any comparisons between studies, therefore, require a researcher use a meta-analytic procedure called a Cohen's d estimation to better understand individual study findings, and to make future comparisons (Arthur, Bennett, & Huffcutt, 2001). Cohen (1992) offered guidance as to Cohen's d estimates and the relative effect size these values represent. Cohen suggested that effect sizes of .80 or greater were "large," .50 "medium," and .20 "small," but cautioned that these estimates should be used as general guidelines because for some phenomena these values may not be completely accurate.

In the case of this study, test statistics were based solely on a correlational design, prohibiting the calculation of a Cohen's d effect size estimate. In this study a multiple regression analysis was undertaken. A multiple regression is in essence a "super-powered" correlation that produces a robust " r " value, indicating the magnitude of the relationships in the data (Tabachnick & Fidell, 2007). In such studies, a general sense of the likely effect size for the study can, also, be gleaned from the aforementioned meta-analytic procedure.

Six studies were identified that could be used to estimate an overall effect size for student adaptation to college (SACQ; Baker & Siryk, 1999). Two of these studies were identified because they surveyed a similar demographic as the current study, college students with disabilities (Adams & Proctor, 2010; Shaw-Zirt et al., 2005). The other four studies were reported in the Student Adaptation to College manual (Baker & Siryk,

1999). The first step was to calculate the Cohen's d estimate for all six studies using an on-line based calculator provided by The University of Colorado at Colorado Springs (Becker, 2000). Then the average of these estimates was calculated to determine an overall effect size estimate for the outcome measure (SACQ). When the Cohen's d estimates were gleaned for all six studies, however, a significant range of estimate emerged (.03 to 1.9). In addition, it was observed that five of these studies used comparison groups of 22 participants or fewer and one had only three participants in each group. These relatively anemic group sizes raised concerns as to the legitimacy of the parametric statistics used to analyze the data for these studies and, in turn, the veracity of any resultant effect size estimations. One study, however, had the most promise as a basis of comparison for the current study. Adams and Proctor (2010) compared 115 undergraduate students with and without disabilities on adaptation to college and found students with disabilities to have lower levels of adaptation to college than their peers without disabilities. The Cohen's d effect size estimate for the study of .23, however, suggested that this finding yielded a relatively small effect size.

Table 1: Descriptive statistics for demographic and disability-related variables

Participants (n = 145)

	n	% of sample	M	SD
<i>Age</i>			21.9	5.97
<i>Gender</i>				
Male	55	37.9		
Female	90	62.1		
Transgender	0	0.0		
<i>Ethnicity by</i>				
African-American	4	2.8		
Asian-American	4	2.8		
Caucasian	131	90.3		
Latino-American	2	1.4		
Native American	1	0.7		
Multi or Bi-Racial	1	0.7		
Other	2	1.4		
<i>Type of Disability</i>				
Attention Deficit Disorder	23	15.9		
Brain Injury	6	4.1		
Blindness or Visual Impairment	3	2.1		
Developmental Disability	7	4.8		
Health Impairment/Problem	7	4.8		
Hearing Impairment	6	4.1		
Mental, Emotional or Psychiatric Condition/Depression	22	15.2		
Orthopedic or Mobility Impairment	12	8.3		
Specific Learning Disability, Dyslexia	32	22.1		
Speech or Language Impairment	2	1.4		
Other	25	17.2		
<i>Age of Disability Diagnosis</i>			11.33	6.89
<i>Semester of Disability Services Used</i>			3.59	3.33

Table 2: Descriptive statistics for college-related variables

Participants (n = 145)

	n	% of sample	M	SD
<i>College Attended</i>				
College/University 1	48	33.1		
College/University 2	7	4.8		
College/University 3	7	4.8		
College/University 4	3	2.1		
College/University 5	1	0.7		
College/University 6	1	0.7		
College/University 7	1	0.7		
College/University 8	30	20.7		
College/University 9	20	13.8		
College/University 10	9	6.2		
College/University 11	3	2.1		
College/University 12	8	5.5		
College/University 13	6	4.1		
College/University 14	1	0.7		
College/University 15	1	0.7		
College/University 16	1	0.7		
<i>Year in College</i>				
Freshman	30	20.7		
Sophomore	28	19.3		
Junior	36	24.8		
Senior	51	35.2		
<i>Transfer Student</i>				
Yes	38	26.2		
No	107	73.8		
<i>GPA</i>			3.22	0.53
<i>Semesters Completed</i>			4.37	3.84
<i>College Size</i>				
Greater than 10,000 undergraduates	89	60.7		
Less than 10,000 undergraduates	56	38.6		
<i>College Region</i>				
Northeast	80	55.2		
Mid-West	65	44.8		
<i>College Type</i>				
Public	107	73.8		
Private	38	26.2		

Table 3: Bivariate correlations – Zero Order Coefficients for Study Variables

	GEN	AGE	DIA	GPA	SEM	SIZ	CLA	REG	PP	PSSDS	ADS	SACQ
GEN	1	.12	.00	-.13*	.11	.02	-.01	.15*	.17*	.06	-.01	.09
AGE		1	.15*	-.07	.38*	.06	.42*	.14*	.14*	.07	-.11	.12
DIA			1	.02	-.02	-.04	-.01	.11	.11	.12	-.05	-.00
GPA				1	-.11	.02	-.02	-.23**	-.09	-.09	.14*	-.20**
SEM					1	.19**	.58**	-.00	.22**	.02	-.05	.05
SIZ						1	.22**	.02	.71**	-.05	-.00	.01
CLA							1	.06	.22**	-.00	.01	.08
REG								1	.28**	-.11	.10	.15*
PP									1	-.05	.03	.09
PSSDS										1	-.64**	-.17*
ADS											1	.28**
SACQ												1

Note: GEN = gender, AGE = age, DIA= age disability diagnosed, GPA = grade point average, SIZ = college size, CLA = class standing, REG = college region, PP = college public or Private, PSSDS = Postsecondary Student Survey of Disability-related Stigma, ADS = Adaptation to Disability Scale-Revised, SACQ = Student adaptation to college questionnaire

* Correlation is significant at the .05 level

** Correlation is significant at the .01 level

Table 4. Descriptive statistics for interval scale variables used in hierarchical regression analysis

Participants (n = 145)

	n	M	SD
<i>Age</i>	145	21.9	5.97
<i>GPA</i>	145	3.22	0.531
<i>PSSDS</i>	145	1.54	0.436
<i>ADS</i>	145	3.20	0.452
<i>SACQ</i>	145	5.16	0.291

Note: AGE = age, GPA = grade point average, PSSDS = Postsecondary Student Survey of Disability-related Stigma, ADS = Adaptation to Disability Scale-Revised, SACQ = Student adaptation to college questionnaire

Table 5. Hierarchical multiple regression results for SACQ regressed on selected variables
($n = 145$)

Independent Variable	Model 1		Model 2		Model 3	
	Beta (CI)	p	Beta (CI)	p	Beta(CI)	p
AGE	.13 (-.002, .014)	.134	.090 (-.004, .012)	.281	.128 (-.001, .014)	.110
GPA			-.160 (-.180, .004)	.060	-.220 (-.210, -.032)	.008**
REG			.088 (-.050, .152)	.318	.042 (-.073, .123)	.616
PP			.029 (-.093, .132)	.734	.027 (-.089, .125)	.740
PSSDS					.020 (-.122, .148)	.847
ADS					.327 (.079, .343)	.002**

Note: Dependent variable = Student adaptation to college (SACQ)

AGE = age, GPA = grade point average, REG = college region, PP = college public or Private, PSSDS = Postsecondary Student Survey of Disability-related Stigma, ADS = Adaptation to Disability Scale-Revised

* Correlation is significant at the .05 level

** Correlation is significant at the .01 level

Table 6. Hierarchical Multiple Regression Model Summary for selected variables

(n = 145)

Model Summary	Model 1	Model 2	Model
df	1/143	4/139	7/137
F	2.27	2.371	4.042
P	.134	.042*	.000**
R Square	.016	.079	.171
Adj R Square	.009	.045	.129
Change in			
R Square	.016	.063	.093

Note: Dependent variable = Student adaptation to college (SACQ)

AGE = age, GPA = grade point average, REG = college region, PP = college public or Private, PSSDS = Postsecondary Student Survey of Disability-related Stigma, ADS = Adaptation to Disability Scale-Revised

* Correlation is significant at the .05 level

** Correlation is significant at the .01 level

CHAPTER 5

DISCUSSION

As early as 1956, Dembo et al. connected environmental stigma and acceptance of disability for veterans of World War II who struggled to find gainful employment in their communities. This study provided the first evidence of the interaction of these constructs for students with disabilities in college. In this chapter an overview of study findings will be presented, and findings will be discussed in relation to the research questions. The limitations and strengths of the study are discussed as well as implications for counselor training and practice. Lastly, recommendations for future research will be made.

Overview of Research Findings

In terms of participant characteristics, students with disabilities who completed the survey were primarily Caucasian (90.3%), female (62.1%), upperclassmen (60%), and academically high achieving (GPA, $M = 3.22$). The average age of participants was 22, which was somewhat lower than other studies (e.g., Wolanin & Steele) that found the average age of students with disabilities to be 26. Most participants had a diagnosis of ADHD (16%) or learning disability (22%), another 15% self-reported a mental, emotional, depression or psychiatric disability, and 17% reported their disability as “other.” Compared to a study that used the same outcome measure (SACQ), Adams and Proctor (2010) also found that most participation came from Caucasian (79.1 %), female (70.4), upperclassmen (60.9) who also had an average GPA greater than 3.0 ($M = 3.14$). The sample pool differed, however, in terms of racial/ethnic demographics, in that, Adams and Proctor received greater participation from African-American students with disabilities (Adams & Proctor 9.6%; current study 2.8%) and Latino-Americans (Adams & Proctor 6.1%; current study 1.4). Participation according to self-reported disability type

is difficult to compare since the Adams and Proctor study used a scale with only four categories (learning, physical/sensory, mental, other). Despite this difference both studies received the greatest participation from students with “learning” related disabilities, including both Attention Deficit Disorder and Learning Disability (Adams & Proctor, 41.5%; current study 38%).

The scale for disability type for this study was borrowed from the National Postsecondary Student Aid Survey (NPSAS; 2008). When compared to the findings of self-reported disability type from the NPSAS, two disability types appear to be different. In this study 22% of participants reported having a learning disability while 9% reported a LD in the NPSAS (NPSAS, 2008). In addition, this study yielded a 15% participation rate from students with a mental, emotional, psychological condition/depression, compared to 24% in the NPSAS (NPSAS, 2008). The NPSAS, however, reported that their survey may not have captured as many students with learning disabilities since other major studies such as the National Longitudinal Transition Study-2 (NLTS2; 2002) also found LD to be the largest group of students with disabilities on college campuses nationwide. They contend this was due to the different means that each of these studies used to determine disability type. The NPSAS used participant self-report, while the NLTS2 used school records to establish participant disability. Wolanin and Steele (2004) and Stodden and associates (2002) also support the position that students with LD are the largest group of students with disabilities in college. With the exception of ethnicity, this study was comparable to other studies of students with disabilities in terms of demographic characteristics. The discrepancies in racial/ethnicity differences can likely be accounted for by the sampling response rates. The largest percentage of students were attending a

predominately White institution that has been activity committed to increasing minority enrollment and other diversity initiatives (Office of the Vice Provost for Educational Equity, 2010).

To control for the effects of demographic variables, they were explored as predictors of adaptation to college and only one was found to have a statistically significant relationship with the outcome variable. In a counterintuitive finding, students with higher GPAs had significantly lower adaptation to college. This was particularly perplexing since past studies had identified students with learning disabilities (the largest demographic in this study) to have lower levels of academic adjustment than their peers without disabilities (Hartman-Hall & Haaga, 2002; Saracoglu et al., 1989). Upon initial consideration this is a puzzling finding since common sense would suggest that higher GPAs should correspond with higher levels of adaptation to college. This inverse relationship, however, has surfaced in another study.

Adams and Proctor (2010) compared students with and without disabilities on adaptation to college using the SACQ. They used all four subscales of the measure, and found that while students with and without disabilities were not significantly different in terms of their academic achievement, they differed significantly on the three other subscales that measure psychosocial aspects of adaptation to college (social adjustment, personal-emotional adjustment, and school attachment). Students with disabilities were significantly less adapted than their peers without disabilities on all three of these psychosocial dimensions. This finding, in two separate studies, supports the notion that students with disabilities have greater struggles with the psychosocial aspects of adaptation to college. This is important information, since evidence shows that student

attrition is rarely due to academic factors and is better predicted by the impact of social, personal, and environmental adjustment difficulties (Gerdes & Mallinckrodt, 1994).

These findings are consistent with other studies that found students with disabilities had more difficulty adjusting to change, coping with criticism, and adjusting to college demands than their peers without disabilities (Saracoglu et al., 1989; Shaw-Zirt et al., 2005). Moreover, students with disabilities also reported less attachment with peers, and lower levels of social skill and self-esteem (Leatherman-Sommers, 1999). This realization raises concerns about the support needs of students with disabilities and whether the current support model truly meets these needs. At present, disability support services in colleges and universities are generally designed around an access only paradigm (minimal services required by law) rather than one of psychosocial support and/or encouragement (Wolanin & Steele, 2004). These services, therefore, tend to focus on academic accommodation and supports and largely neglect psychosocial needs. This observation raises the question, if we know they have different needs, does the current framework actually ensure equal access to the college experience? The other significant finding from this study provides evidence that another “support” approach is likely to have greater salience in adaptation to college for students with disabilities.

The only other variable to achieve statistical significance in the hierarchical model was acceptance of disability. As hypothesized, participants in the survey pool had significantly higher levels of adaptation to college when they also had higher levels of acceptance of disability. This finding was consistent with other studies that supported relationships between acceptance of disability and various psychosocial factors. Li and Moore (1998) for instance found self-esteem and emotional support to be higher among

people with higher levels of disability acceptance. Income and education level (higher) also had positive effects when other demographic characteristics were accounted for and acceptance of disability was higher among more experienced wheelchair athletes when compared to more novice peers (Patrick, 1984). Poll and Kaplan De-Nour (1980) found that higher levels of self-reported locus of control were positively associated with higher acceptance of disability. Other researchers have found that acceptance of disability was positively related to self-esteem and assertiveness (Glueckauf, Horley, Poushinsky, & Vogel, 1984; Starke, 1987; Starr, 1977). In the only other study identified in the literature of college students with disabilities, acceptance of disability was positively related to self-concept (Linkowski & Dunn, 1974).

Since participants in this study were primarily upperclassmen, it is important to note that in another study acceptance of disability scores were positively related with years of education (Poll & Kaplan De-Nour, 1980). This fact may have contributed, in part, to the higher levels of acceptance of disability among study participants. In addition, in both this study and the Adams and Proctor (2010) study, no statistical significance for class standing was found for level of adaptation to college. This is counterintuitive since it is assumed that upperclassmen are likely to have higher levels of adaptation than lower classmen. In the case of these two studies this assumption did not hold up among students with disabilities.

Adams and Proctor (2010) used the Adjustment subscale of the Reactions to Impairment and Disability Inventory (RIDI) to measure adaptation to college and did not find support for the RIDI as a predictor of adaptation to college. As suggested in Chapter Two, psychosocial adaptation to disability (RIDI) and acceptance of disability (ADS-R)

are distinct psychosocial constructs with very different philosophical foundations (Livneh & Antonak, 1997). Adams and Proctor (2010) suggested that the RIDI was not a statistically significant predictor of adaptation to college because participants in their study were registered with their respective DSS offices and were likely to be more adjusted to disability than their peers with disabilities who had not registered on campus (Stodden et al., 2002). In this study, the participant pool was also students with disabilities registered with their college DSS office. The psychosocial construct, disability-related acceptance of disability, however, was found to predict adaptation to college. This finding provided support for the distinctiveness of these two constructs (reactions to disability, acceptance of disability).

Wright (1983) proposed that people with disabilities with higher levels of acceptance of disability were more likely to be psychologically, emotionally, and socially stout. She further theorized that this durability would bolster stress coping ability. College adaptation is inherently stress provoking, therefore it is not surprising that acceptance to disability was positively correlated with adaptation to college.

An interesting exploratory finding in this study was that perceived stigma (PSSDS) had a mediating impact on the relationship between acceptance of disability and student adaptation to college. Although there are no other validated measures of perceived stigma, a researcher generated measure of social hostility and discrimination used by Li and Moore (1998) found support for a negative relationship between acceptance of disability and perceptions of social hostility and discrimination.

The relationship between perceived stigma on a college campus and student adaptation to college was explored as part of this study by including the PSSDS in a hierarchical multiple linear regression analysis, which found the relationship to be non-linear. A Pearson Product Moment correlation between perceived stigma and adaption to college, however, was found to be statistically significant. In addition, perceived stigma (PSSDS) and acceptance of disability (ADS-R) were also found to be significantly significant in the bivariate correlations. This discovery raised a question as to the nature (path) of the relationship among these three variables (PSSDS, ADS-R, SACQ). To explore this question a Sobel test of mediation was performed. The result of the Sobel test revealed that perceived stigma (PSSDS) mediated the relationship between acceptance of disability (ADS-R) and adaptation to college (SACQ). This result is an indication that adaptation to college for students with disabilities is a complex psychosocial process that likely involves many factors. These might include factors such as social support, quality of disability services, quality and availability of counseling services, and satisfaction with these related services to name a few. These factors are likely acting in concert to affect student adaptation. Remediation that targets only one of these factors would, therefore, be misguided, since they are so intertwined.

This study also explored whether a relationship existed between acceptance of disability (ADS-R) and student adaptation to college (SACQ). Results of a hierarchical multiple regression analysis supported a statistically significant linear relationship. In addition, results of a Pearson product moment bivariate correlations revealed a statistically significant relationship between acceptance of disability and perceived stigma. A Sobel test of mediation revealed that the relationship between acceptance of

disability (ADS-R) and student adaption to college was mediated by perceived stigma (PSSDS). This finding is an indication that acceptance of disability is a complicated psychological process that receives influence from other processes. In this case, the discovery of mediation in this study indicated that perceived stigma on a college campus is one of the contributing factors for students with disabilities on their college adaptation process.

The research question for this study explored the combined contribution of both perceived stigma (PSSDS) and acceptance of disability (ADS-R) on student adaptation to college (SACQ). This question was explored using a hierarchical multiple regression analysis. In the hierarchical procedure perceived stigma (PSSDS) and acceptance of disability (ADS-R) were stepped into the hierarchical model in the third block of variables. When added to the hierarchical model the change in R squared from the first step (demographic block) to the third and final model increased by .155. The final variance explained value for the hierarchical model was .171. The nearly 16% increase in variance explained, when perceived stigma (PSSDS) and acceptance of disability (ADS-R) were both in the model, suggested that these variables have a significant impact on the variance in student adaptation to college (SACQ). In practical terms, this means that there are many factors that contribute to adaptation to college for students with disabilities. The results of this study revealed two of these to be perceived stigma and acceptance of disability.

Since a mediating relationship was discovered among the principle variables in the model (PSSDS, ADS-R), an interaction term was developed by creating a new variable or interaction term from the sum of these two variables. This new variable was

then added to the third step in the hierarchical model. In a puzzling finding the new interaction term was not statistically significant with the outcome variable (SACQ). This finding is difficult to explain since the addition of an interaction term to a model generally retains statistical significance (Tabachnick & Fidell, 2007).

It is possible that this unique interaction of variables is being influenced by factors that were not included in this study. This realization suggests that the relationship between perceived stigma (PSSDS) and acceptance of disability is a complex one. From the earliest studies on disability to the present, rehabilitation researchers and theorists have suggested that these constructs go hand-in-hand (Dembo, Wright, & Leviton, 1956; Vash & Crewe, 2004). While we have had a quantitative measure of acceptance of disability since the 1970s, we did not have a measure of perceived stigma (Groomes & Linkowski, 2007; Linkowski, 1971). The development of the PSSDS, measuring perceived stigma on a college campus, therefore, represents a novel opportunity to better understand the relationship between acceptance of disability and perceived stigma.

Limitations of Study

Every empirical exploration, no matter how rigorous, has weaknesses (Heppner et al., 2008). It is, therefore, important to identify these weaknesses and frame any study results within an understanding of both the study strengths and limitations. The results of this study are best understood within the context of its limitations. Several limitations of this study aid in our understanding of the empirical findings.

The investigation was based on participant self-reporting, and was limited by the time period during the academic year (September and October) that students were administered the survey. In addition, the investigation relied on the use of an on-line survey administration. As a result, it was dependent on the reliability of this technology,

student access to a computer and the Internet, and the actual disability-related accessibility of this survey tool.

The respondents self-selected for study participation and a relatively high number of abandonment by study participants occurred. Fifty-eight interested potential participants entered the survey link, but did not proceed past the informed consent page. Another 82 potential participants started the survey, but left the survey within the first section (between approximately the first and sixth pages).

The recruitment efforts for this study were far more arduous than had been anticipated at study conception. The study announcement with the AHEAD ALERT and call for assistance yielded no participation from DSS personnel. As a result, the only participation from DSS professionals came from the professional listserv (DSSHE-L) and from personal contact by the primary investigator. In one case, a DSS professional wanted to pass along the survey to her students but was hindered by her institution's policies regarding external researchers (requiring another IRB be completed). It is unknown whether similar policies at other institutions were responsible for DSS professional non-response.

Because participants were registered with their DSS office, generalizations cannot be made to students with disabilities who do not register with the DSS office at their school. Most participants were enrolled at one large university (33 %). Seventy-three percent of the participants attended a public institution of higher education. Fifty-five percent of participants attended a school in the Northeastern United States, and most participants attended a school with 10,000 undergraduate students or more. The majority of participants were female (62%) and a large number of the participant pool were

Caucasian (90%). The largest percent of participants by class standing were seniors (35%), while 60% of the participants were upper classmen (juniors, seniors). Due to these limitations, any generalizations of study findings to students who do not reflect the demographic characteristics of the students with disabilities in this study must be made with caution.

Strengths of Study

This study was the first to explore the relationships between perceived stigma on a college campus (PSSDS) and acceptance of disability (ADS-R) on adaptation to college (SACQ) for students with disabilities. In addition, this was the first study, outside of instrument pilot and validation studies, to utilize the new measure of perceived stigma on a college campus (PSSDS). Results of this study, therefore, will serve the validation efforts of the instrument developer in the hope of using the PSSDS to improve campus climate issues for students with disabilities (Trammell, 2006, 2009).

A review of the literature revealed that only two other studies have explored adaptation to college for students with disabilities as an outcome variable (Adams & Proctor, 2010; Sanders & Dubois, 1996). Only one of these studies explored disability-related independent variables (reactions to disability, self-advocacy skills) as possible predictors of adaptation to college for students with disabilities (Adams & Proctor, 2010). While finding support for a predictive positive relationship between self-advocacy skills and adaptation to college, they did not, however, find statistically significant support for a predictive relationship between reaction to disability (RIDI) and the outcome variable (SACQ). This study was the first known study to establish relationships between both disability-related constructs in the study and adaptation to college for students with

disabilities in higher education. This study found support for relationships between the principal disability-related independent variables and student adaptation. In addition, a relationship was found between acceptance of disability and student adaptation, lending support to the theorized contribution of this disability-related factor on adaptation to college for students with disabilities. Additionally, perceived stigma was found to mediate this relationship, indicating the complexity of these processes.

This study also supports other findings that show that despite high academic achievement, students with disabilities are still struggling to adapt to college life and, in spite of appearances, may be at-risk for dropping out (Adams & Proctor, 2010). Another relative strength of this study was the participation of 178 (before screening procedures) students with disability from 16 colleges or universities from two geographical regions of the United States. A review of the literature revealed that the only studies that accomplished participation from more than three schools were large-scale, grant funded studies such as the NPSAS and NLTS2, and those performed by the RRTC at the University of Hawaii at Manoa (NLTS2, 2002; NPSAS, 2008; Rehabilitation Research and Training Center, 2010).

Future Research Recommendations

Prior to 2009, no quantitative measure of perceived stigma existed to assist our understanding of the effect of perceived stigma on important quality of life indicators for people with disabilities. The Postsecondary Student Survey of Disability Related Stigma (PSSDS) provides an opportunity for researchers to understand perceived stigma for students with disabilities in a postsecondary environment. This study provided the first investigation into the effect of this variable on adaptation to college and the mediating effect it has on the relationship between acceptance of disability and adaptation to

college. Since the PSSDS is still a relative new measure, future research on students with disabilities in college should utilize this instrument to explore research questions related to stigma and assist with the continued validation efforts of the instrument creator (Trammell, 2009).

The results from this and other studies suggest that programs and services that target non-academic college adjustment issues are needed. At present, some colleges and university offer such programs (peer mentor programs, disability support groups, etc.). A review of the literature revealed, however, that very little is known about the efficacy and effectiveness of these programs. Future research, therefore, should be performed to evaluate these programs. These designs could be quasi-experimental, and could gauge student adaptation pre- and post-participation in the program. A true experimental design (no treatment control group), however, might be prohibitive since counselors have an ethical duty to provide services if it is believed this service may be helpful (Heppner et al., 2008). A comparison study, however, is plausible if recruitment of both students who do and do not elect to participate in the program are willing to participate. If empirical evidence supports the suspected benefits of such programs, funding and institutional support will likely follow.

This study identified the presence of a mediating relationship that could not be accounted for in the information provided by the variables included in this study. This finding suggests that the relationships between and among these constructs is a complicated one. Future research should be performed with these variables as well as others that may contribute to adaptation to college. These studies can also be correlational designs using these and other quantitative instruments. Analyses of these variables should

seek to understand the complexities of these relationships and the paths between them (i.e., path analysis, structural equation modeling).

A review of the literature and findings from this study also support the need for qualitative exploration. It is clear from the quantitative evidence that many of the questions these studies generate might be better addressed with qualitative designs. In the case of this study, a mediating contribution to the relationship between acceptance of disability and adaptation to college was identified. When these variables were added back into the hierarchical multiple regression model as an interaction term, they were no longer a statistically significant predictor. A qualitative approach could aid in understanding how these variables interact with one another and if other contributing factors were missed in this quantitative exploration. In addition, qualitative studies could be designed to elicit information from students with disabilities as to the specific services and supports that have been helpful to them and why.

Implications for Counselors and DSS Personnel

Disability Support Services personnel are the professionals most often associated with service provision to students with disabilities in higher education. A college campus is a complicated environment with various demands on students and corresponding professionals charged with helping students to navigate these demands. These professionals include academic advisors, psychotherapeutic counselors, career center counselors, academic support specialists, and specialized program counselors (e.g., Educational Opportunity Program, athlete support center, Greek programs). Professional counselors are likely to fulfill these service needs and are, therefore, likely to interact with students with disabilities with some regularity.

Findings from this study provide evidence of the potential for students with disabilities to be at-risk for drop out despite academic evidence to the contrary. College counselors and DSS professionals need to be aware of the social, psychological, and environmental stressors with which students with disabilities must cope. Counselors and DSS professionals need to be watchful for signs of these stressors and be willing to probe into a student's overall well-being and adjustment challenges.

In addition to individual support, counselors and DSS professionals need to consider the development of programs and services that specifically provide support to students with disabilities in adjustment areas other than those related to academic performance. These programs could deliberately orchestrate social involvement and interpersonal support. Events both disability-related and non-disability related should be sponsored and offered to students with disabilities that might facilitate the interaction of students with disabilities on campus who might not otherwise meet. These programs might include a peer mentor program, psychoeducational opportunities that teach self-determination skills, and disability related support groups.

Implications for Counselor Training

The needs of students with disabilities in college are rarely addressed in counselor education programs. Recognizing their unique needs, Wilson, Livneh, and Duchesneau (2002) suggested that counselor education programs offer a certificate program specifically designed to train counseling professionals to work with students with disabilities in college. Whether counselor education addresses training counselors to meet the needs of students with disabilities informally or more formally, as Wilson and associates suggest, it must happen. A preponderance of research supports the recognition

of students with disabilities as a marginalized college student population in need of professional concern (Stodden et al., 2002; Wolanin & Steele, 2004).

Counselor training should include information on the laws that pertain to equal access for students with disabilities, as well as accommodation determination and provision. As this and other studies demonstrate, students with disabilities have adjustment challenges that extend well beyond the classroom. Counselor education should include information about psychosocial difficulties encountered by students with disabilities and counseling strategies and programs should be emphasized. Counseling students should be adept at psychoeducational strategies that enhance student knowledge about navigating college life as a student with a disability. In addition, counselors should be competent small group facilitators (peer mentor program, support group). Counselors should also be encouraged to learn how to write grants to support programs and services that enhance adjustment for college students with disabilities.

Lastly, counselor education programs must actively advocate for students with disabilities on their campuses and work to remove physical, technological, and most importantly attitudinal barriers to higher education for students with disabilities. All members of the counselor education community on campus, faculty, staff, and students must be encouraged to participate in this undertaking.

Conclusion

Times have changed; from the 1950s to present day the need for a college degree has shifted significantly. Sixty years ago 80% of the American workforce could obtain suitable employment without a college degree (Carnevale & Fry, 2000). In the new millennium, only 40% of American workers can obtain gainful employment without a

degree (Carnevale & Derochers, 2003). Clearly, attaining a college degree has become a minimal credential for the attainment of meaningful employment and quality of life satisfaction (Carnevale & Derochers, 2003; Carnevale & Fry, 2000). A reflection of this economic shift has been a 26% increase in college enrollments over the past 45 years (U.S. Department of Education, National Center for Educational Statistics, 2006).

Clearly, a college education has become a critically important component in both economic and overall quality of life for the American workforce. In spite of the need for a college education postsecondary attrition is high. Over 50% of college students drop out of school. Most often these students simply could not adjustment to college life. For college students with disabilities, college adaptation is even more complicated due to the compounding presence of a disability. Indeed, students with disabilities leave school more frequently than their peers without disabilities (Wolanin & Steele, 2004).

Researchers have demonstrated that students with disabilities have significantly lower levels of adaptation to college than their peers without disabilities (Adams & Proctor, 2010). They have also found that higher levels of self-reported self-advocacy skills, higher problem-solving skills, greater social support, reporting fewer stressful events, using more resources, and having more social support were predictive of better overall adaption to college (Adams & Proctor, 2010; Sanders & Dubois, 1996).

This study added to our understanding of adaptation to college for students with disabilities by finding predictive relationships between GPA and acceptance of disability on student adaption to college. In this study students with higher GPAs had significantly lower levels of adaptation to college, dispelling the myth that academic achievement is an accurate indicator of adaptation to college for students with disabilities. In addition,

participants with higher levels of acceptance of disability had higher self-reported levels of adaptation to college. In an interesting exploratory finding, perceived stigma was a mediating factor in the relationship between acceptance of disability and adaptation to college.

The purpose of this study was to explore whether students with disabilities in college have a more complicated adaptation process, and whether disability specific coping processes (acceptance of disability) can parry some of the challenges experienced by students with disabilities. Counselors are in a unique position to aid the acceptance of disability process and support the psychosocial needs of students with disabilities. It is this author's greatest hope that this project will encourage a more supportive timbre to service provision for students with disabilities in college. With a tincture of support, encouragement, and understanding, students with disabilities in college can learn that their adaptation hurdles are simply challenges beyond which they can transcend.

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APPENDIX A

AHEAD ALERT Newsletter Announcement

DSS Personnel Invitation email

Headline: Research Study on Factors that Influence Adaptation to College for Students with Disabilities

Dear AHEAD Members:

I am a graduate student in Counselor Education and Supervision at Penn State University. I would like your help with my dissertation research. I am specifically looking for the participation of students with disabilities at four-year colleges and universities. I would like to ask your assistance with passing along my survey to students registered with your office. If you have a general email announcement list, all you would need to do is send the attached email inviting students to participate. This invitation has the link to the on-line survey. If you do not maintain an email list for your students, a flyer invitation/announcement with the web address for the survey is available here. If you would be willing to forward an email or post a flyer invitation in view of your students, I would be very grateful. If students have any questions related to the survey, they are to be directed to me or to my supervising faculty member.

The survey will take 10-20 minutes and is designed to understand the factors that influence adaptation to college for students with disabilities. The on-line survey is supported by Survey Gizmo which has been rated the most accessible survey tool on the web. It is fully accessible to users of screen reading and magnification software, and is also keystroke navigable. In exchange for their participation, students who complete the survey will have an opportunity to enter a raffle to win one of ten \$25.00 gift cards to Amazon.com.

As with any research project, this research is being performed with Penn State University Office for Research Protections Institutional Review Board approval and is under the supervision of my Dissertation Chair, Dr. Brandon Hunt. If you have any questions or concerns, please do not hesitate to contact me at the phone number or email address below. Or, you are also welcome to contact Dr. Hunt at 814-863-2408 or bbh2@psu.edu.

If you elect to assist me, please send me a quick email confirming your participation, the name of your college or university, and the approximate number of students to whom you will forward the survey. Thank you for your time, attention, interest, and assistance with my dissertation research.

Sincerely,

Samantha J. Herrick, M.S., CRC, NCC, ABD
Doctoral Candidate – Counselor Education and Supervision
Disability Specialist – Office for Disability Services
The Pennsylvania State University
116 Boucke Building
University Park, PA 16801
845-661-3043
sjh271@psu.edu

APPENDIX B

Participant Invitation Flyer

ATTENTION**Students with Disabilities**

Would you like the chance to win a \$25.00 gift card to Amazon.com?

Are you interested in helping colleges and universities to better understand your experiences as a student with a disability?

Are you registered with your disability services office?

Are you 18 years of age or older?

If so, please go to the link below and fill out an on-line survey. The survey is fully accessible and will take only 10-20 minutes to complete. Your participation will be kept confidential.

In exchange for your completion of the survey, you will have the opportunity to enter a raffle to win one of ten \$25.00 gift cards to Amazon.com.

Thank you for your help!

<http://www.surveygizmo.com/s3/325490/College-Adaptation>

This study is being conducted for research related purposes. To participate you must be at least 18 years old. For additional information or questions about this study please contact Samantha Herrick, 845-661-3043 or sjh271@psu.edu. Or contact, Dr. Brandon Hunt at bbh2@psu.edu.

APPENDIX C

Participant Invitation Letter

Samantha J. Herrick 116 Boucke Building, University Park, PA 16801
Phone: 845-661-3043 Email: sjh271@psu.edu

September 3, 2010

Dear Student:

I need your help. I am a doctoral student at Penn State University conducting research for my dissertation. I need college students with disabilities to complete an on-line survey. The purpose of this research is to learn more about your adaptation to college life and the factors that contribute to this process. Your participation will provide valuable information that will help providers of disability services in college to better serve students with disabilities.

The survey takes approximately 10-20 minutes to complete and can be completed entirely on-line at <http://www.surveygizmo.com/s3/325490/College-Adaptation>. The survey is accessible to users of screen reading and text magnification software and can also be taken by people who use the keyboard for computer navigation.

For your participation, you will have the opportunity to win one of ten \$25.00 gift cards to Amazon.com. Please complete the survey by October 1, 2010. If you have any questions or concerns regarding this research project, please do not hesitate to contact me at the phone or email contact provided above.

Thank you for your time, interest, and assistance with this project.

Sincerely,

Samantha J. Herrick, M.S., CRC, NCC, ABD
Doctoral Candidate – Counselor Education and Supervision
Disability Specialist – Office for Disability Services
The Pennsylvania State University

APPENDIX D



Implied Informed Consent Form for Social Science Research
The Pennsylvania State University

Title of Project: Post-secondary Students with Disabilities:
Predictors of Adaptation to College

Principal Investigator: Samantha J. Herrick
Office for Disability Services
116 Boucke Building
sjh271@psu.edu
814-863-1807
845-661-3043

Advisor: Dr. Brandon Hunt
Dissertation Chair
327 CEDAR Building
bbh2@psu.edu
814-863-2408

1. **Purpose of the Study:** The purpose of this research study is to explore factors related to college adaptation for students with disabilities. To participate, you must be a least 18 years of age, enrolled in college, have a disability, and be registered with your institution's disability services office. This study is being performed for a doctoral dissertation in Counselor Education and Supervision at The Pennsylvania State University.
2. **Procedures to be followed:** You will be asked to complete a 10-20 minute on-line survey. Please answer the questions as completely and honestly as possible. Your responses and participation in the study will be strictly confidential. You do not have to answer any questions with which you are uncomfortable, however, if you skip too many questions (more than 10) this could exclude your responses from the study. Skipped questions, however, will not exclude you from entering the gift card drawing.
3. **Discomforts and Risks:** There are no anticipated risks associated with participating in this research beyond those experienced in everyday life. Some of the questions, however, are personal and might cause discomfort. If this occurs, contact your campus disability counselor/coordinator.

4. **Benefits:** The benefits to you may include greater awareness of your level of adaptation to college and some of the factors that may be affecting your level of adaptation. The benefits to society include a better understanding of the factors that influence how well students with disabilities adapt to college life.
5. **Duration/Time:** The survey will take 10-20 minutes to complete and will be available on-line for the month of September, 2010. You will only be asked to complete one survey.
6. **Statement of Confidentiality:** Your participation in this research is confidential. The survey does not ask for any information that would identify to whom the responses belong (e.g., name, address). Since the survey will be administered on-line, your confidentiality will be kept to the degree permitted by the technology used. No guarantees can be made regarding the interception of data sent via the Internet by any third parties. The Pennsylvania State University's Office for Research Protections, the Institutional Review Board, and the Office for Human Research Protections in the Department of Health and Human Services may review records related to this research study. The primary investigator will be the only individual to have access to the final records. In the event of any publication or presentation resulting from this research, no personally identifiable information will be shared because your name is in no way linked to your responses.
7. **Right to Ask Questions:** If you have questions or concerns about this study, please contact Samantha J. Herrick at sjh271@psu.edu or 845-661-3043 or Dr. Brandon Hunt at bbh2@psu.edu or 814-863-2408. You can also contact either of these people if you feel this study has harmed you. If you have any questions, concerns, problems about your rights as a research participant or would like to offer input, please contact The Pennsylvania State University's Office for Research Protections (ORP) at (814) 865-1775. The ORP cannot answer questions about research procedures. Questions about research procedures can be answered by the research team.
8. **Payment for participation:** In exchange for your participation in the study, you will be given the opportunity to enter a drawing for one of ten \$25 gift cards to Amazon.com. If you elect to enter the drawing you will be directed to an email address separate from the on-line survey. You will be asked to provide only your email address; no other identifying information will be requested from you. At the end of the survey administration period, ten email addresses will be randomly drawn and the "winners" contacted via email with instructions for gift card remittance. Once all ten winners have been contacted all email addresses collected for drawing purposes will be destroyed.

9. **Voluntary Participation:** Your decision to be in this research is voluntary. You can stop at any time. You do not have to answer any questions you do not want to answer. Refusal to take part in or withdrawing from this study will involve no penalty or loss of benefits you would receive otherwise. You must be 18 years of age or older to take part in this research study. Completion and return of the survey implies that you have read the information in this form and consent to take part in the research.

If you have read and understand the above statements and agree to take part in this study, please click on the “Next” button below. Your choice to continue with the study indicates your consent to participate in this research. It is recommended you print this form for your records and future reference. To print a PDF of this form, copy and paste this address into your browser: https://appv3.sgizmo.com/users/91681/IRBApproval_34087ICF1001080410Implied.pdf.

This informed consent form (Document#1001) was reviewed and approved by The Pennsylvania State University’s Office for Research Protections Institutional Review Board (IRB #34087) on 08/04/10. It will expire on 08/02/11. (SJH)

APPENDIX E

Demographic Questionnaire

- 1) What is your sex?
 - a) Male
 - b) Female
 - c) Transgender male to female
 - d) Transgender female to male

- 2) How old are you? _____

- 3) What is your race/ethnicity?
 - a) African-American
 - b) Asian-American
 - c) Caucasian
 - d) Latino-American
 - e) Native American
 - f) Multi- or Bi-racial
 - g) Other:_____

- 4) What college/university do you attend?_____

- 5) What type of college are you attending?
 - a. 4-year college/university (bachelor's degree)
 - b. 2-year community college (associate's degree)

- 6) What year are you in college?
 - a) Freshman
 - b) Sophomore
 - c) Junior
 - d) Senior
 - e) Graduate

- 7) Did you transfer to your present school from another institution?
 - a. Yes
 - b. No

- 8) If “yes,” why did you transfer? _____
- 9) What is your cumulative GPA? _____
- 10) How many semesters of college have you completed?
- 11) What type of disability do you have? (**Please select your primary disability only**)
- a) Attention Deficit Disorder
 - b) Brain injury
 - c) Blindness or visual impairment
 - d) Developmental disability
 - e) Health impairment or problem
 - f) Hearing impairment
 - g) Mental, emotional, or psychiatric condition/depression
 - h) Orthopedic or mobility impairment
 - i) Specific learning disability, dyslexia
 - j) Speech or language impairment
 - k) Other: _____
- 12) At what age was your disability diagnosed? _____
- 13) Are you registered with your college’s disability services office?
- a. Yes
 - b. No
- 14) How many semesters have you used disability services? _____

APPENDIX F

Postsecondary Student Survey of Disability-Related Stigma (PSSDS)

(Trammell, 2009)

When checking your responses, keep in mind your opinions and feelings as a student with a disability. On this survey, disability refers to disabilities of all types, visible or invisible. Please check the appropriate response to the right of each statement and respond to every statement.

	never	occasionally	regularly	frequently	all the time
1. I think about my disability...○	○	○	○	○	○
2. Students with disabilities don't receive as many opportunities as those without disabilities.....○	○	○	○	○	○
3. Teachers view me as having a shortcoming.....○	○	○	○	○	○
4. My friends think I'm different because of my disability.....○	○	○	○	○	○
5. People with disabilities are treated differently.....○	○	○	○	○	○
6. I think of myself as smart...○	○	○	○	○	○
7. Students with disabilities are discriminated against.....○	○	○	○	○	○
8. Teachers view me positively.....○	○	○	○	○	○
9. I get along well with others..○	○	○	○	○	○
10. Society stereotypes people with disabilities.....○	○	○	○	○	○

11. I feel frustrated about school.....○ ○ ○ ○ ○
12. Students with disabilities are successful.....○ ○ ○ ○ ○
13. I do poorly on tests in part due to my disability.....○ ○ ○ ○ ○
14. Other students are understanding about disabilities.....○ ○ ○ ○ ○
15. I get support from other students with disabilities...○ ○ ○ ○ ○
16. I feel good about myself...○ ○ ○ ○ ○
17. Students with disabilities are successful in the workplace.....○ ○ ○ ○ ○
18. My grades are lower than expected.....○ ○ ○ ○ ○
19. My disability causes strains to relationships.....○ ○ ○ ○ ○
20. I support other students with disabilities.....○ ○ ○ ○ ○
21. I feel that I am treated fairly on campus.....○ ○ ○ ○ ○
22. Students with disabilities need more support services and accommodations.....○ ○ ○ ○ ○
23. I ask for accommodations.....○ ○ ○ ○ ○
24. I talk to others about my disability.....○ ○ ○ ○ ○

APPENDIX G
Adaptation to Disability Scale-Revised (ADS-R)

Groomes, D. A. G. (2007)
Derived from the AD Scale (Linkowski, D. C., 1971)

Read each statement below and circle the number that indicates to what extent you agree or disagree with the statement.

- | | Strongly
Disagree | Disagree | Agree | Strongly
Agree |
|--|----------------------|----------|-------|-------------------|
| 1. With my disability, all areas of my life are affected in some major way.○ | ○ | ○ | ○ | ○ |
| 2. Having my disability, I am unable to do things like people without disabilities do.....○ | ○ | ○ | ○ | ○ |
| 3. Disability or not, I am going to make good in life.....○ | ○ | ○ | ○ | ○ |
| 4. Because of my disability, I have little to offer people.....○ | ○ | ○ | ○ | ○ |
| 5. Good physical appearance and physical ability are the most important things in my life.....○ | ○ | ○ | ○ | ○ |
| 6. A person with a disability is restricted in certain ways, but there is still much s/he is able to do.....○ | ○ | ○ | ○ | ○ |
| 7. No matter how hard I try or what I accomplish, I could never be as good as the person who does not have my disability.....○ | ○ | ○ | ○ | ○ |

8. It makes me feel very bad to see all the things that people without disabilities can do that I cannot.....○ ○ ○ ○
9. The most important thing in this world is to be physically capable.....○ ○ ○ ○
10. Because of my disability, other people's lives have more meaning than my own.....○ ○ ○ ○
11. Because of my disability, I feel miserable much of the time.....○ ○ ○ ○
12. Though I have a disability, my life is full.....○ ○ ○ ○
13. The kind of person I am and my accomplishments in life are less important than those of persons without disabilities.....○ ○ ○ ○
14. A physical disability affects a person's mental ability.....○ ○ ○ ○
15. Since my disability interferes with just about everything I try to do, it is foremost in my mind practically all of the time.....○ ○ ○ ○
16. There are many things a person with my disability is able to do.....○ ○ ○ ○
17. My disability in itself affects me more than any other characteristic about me.....○ ○ ○ ○

18. There are many more important things in life than physical ability and appearance.....○ ○ ○ ○
19. Almost every area of life is closed to me.....○ ○ ○ ○
20. My disability prevents me from doing just about everything I really want to do and from becoming the kind of person I want to be.....○ ○ ○ ○
21. I feel like an adequate person regardless of the limitation of my disability.....○ ○ ○ ○
22. My disability affects those aspects of life that I care most about.....○ ○ ○ ○
23. A disability such as mine is the worst possible thing that can happen to a person...○ ○ ○ ○
24. You need to have a good and whole body to have a good mind.....○ ○ ○ ○
25. There are times that I completely forget that I have a disability.....○ ○ ○ ○
26. If I didn't have my disability, I think I would be a much better person.....○ ○ ○ ○
27. When I think of my disability, it makes me so sad and upset that I am unable to do anything else.....○ ○ ○ ○

28. People with disabilities are able to do well in many ways.....○ ○ ○ ○
29. I feel satisfied with my abilities and my disability does not bother me too much.....○ ○ ○ ○
30. In just about everything, my disability is annoying to me so that I can't enjoy anything.....○ ○ ○ ○
31. Physical wholeness and appearance make a person who s/he is.....○ ○ ○ ○
32. I know what I can't do because of my disability, and I feel that I can live a full life.....○ ○ ○ ○

APPENDIX H

Student Adaptation to College Questionnaire (SACQ)

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For your additional reference in the event that your dissertation will be microfilmed, WPS will not authorize reproduction of our texts by microfilm, due to the public availability of the medium. While we regret any inconvenience our position may cause, we hope you appreciate our concern with ethical considerations.

We appreciate your interest in our material, as well as your consideration for its copyright. Please contact me if you have any questions.

Sincerely yours,

Susan Dunn Weinberg
Assistant to the President
WPS Rights and Permissions
e-mail: weinberg@wpspublish.com

SDW:se

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Western Psychological Services
A Division of Manson Western Corporation
12031 Wilshire Boulevard
Los Angeles, CA 90025-1251
www.wpspublish.com

April 22, 2010

Samantha J. Herrick
Doctoral Candidate
The Pennsylvania State University
Re: *Student Adaptation to College Questionnaire (SACQ)*

Dear Ms. Herrick –

In follow-up to your email of December 27, 2009, and your professor's email of February 14, 2010, this serves to provide terms that will permit you to adapt the format of the SACQ for administration and scoring via a secure, password-protected on-line environment, for sole application within your registered graduate study, examining the relationship between perceived stigma and acceptance of disability on adaptation to college for students with disabilities.

Western Psychological Services will authorize you to adapt and arrange for delivery of SACQ material as described – parallel with and consistent to the entire prevailing item set, and using prevailing response categories – including your administering the scale a specific number of times within the project, and your creating a scoring-only computerized key for tabulation of item responses, as based on our proprietary hand-scoring key. Our authorization is for the sole purpose of conducting the above-described study, and not for continued or commercial use, and is subject to satisfaction of the following conditions:

- (1) You must purchase from WPS a non-exclusive license for the anticipated number of SACQ administrations.
- (2) The license fee for this described use of the SACQ will be based on prevailing prices for the hand-scored SACQ Test Form (W-228A), less 20% Research Discount. Note that we license this instrument in units of twenty-five (25) with one hundred (100) minimum licensed uses; shipping and handling fees are not applicable to licensing fees (e.g., 200 total adapted SACQ administrations @ $\$45.00/25 = \$360.00 \times 80\% = \$288.00$ total license fee).
- (3) The license fee must be prepaid in U.S. dollars drawn on a U.S. bank or by international money order (Visa and MasterCard accepted and swiftest), and is non-refundable. To ensure proper handling of your licensing arrangements, and to guarantee the rate in condition 2 above, please send the payment to my attention with a signed copy of this letter, within the next sixty (60) days. *Allow*

the emphasis that you must contact WPS Rights and Permissions to arrange payment of your license fees; please do not contact WPS Customer Service for this purpose.

- (4) Each reprint (or viewing) of the SACQ material must bear – such as on each screen of SACQ item presentation – the required copyright notice that will be provided to you by WPS. WPS maintains its proprietary rights to all material directly sourced from our copyrighted material as contained within SACQ research adaptations.
- (5) With specific regard to the on-line administration, access to the SACQ items must be granted only by a secured password that you provide solely to participants in the study.
- (6) You agree to provide WPS with one copy of all articles (including research reports, convention papers, journal submissions, theses, etc.) that report on the SACQ use in your research. The articles should be marked to the attention of the WPS Research Coordinator. WPS reserves the right to use or reference such reports; you will of course receive proper acknowledgment if we use your research results.
- (7) WPS acknowledges that you will need to adapt our copyrighted scoring key for the purpose of computerized evaluation of responses to your research instrument -- and you have our authorization to do so provided you agree to destroy the adapted key following completion of your research. Also, documentation for your computerized adaptation of the SACQ key must bear the required copyright notice that will be provided to you by WPS.
- (8) You acknowledge that – by undertaking a licensed modification in format and/or content of WPS's proprietary, formally published material – you assume full and sole responsibility for the WPS content used within your study and related results determined as a result of the investigation. You further agree to indemnify WPS, its assignees and licensees, and hold each harmless from and against any and all claims, demands, losses, damages, liabilities, costs, and expenses, including legal fees, arising out of the use of WPS-published material from which your uses shall derive.

Upon receipt of your license payment with signature to this letter (see below), WPS will send to you the required copyright notice (see conditions #4 and #7), and we'll issue and send to you a license to create the online adaptation and to administer and score it the specified number of times.

NOTE: To source the administration instructions, item content, and scoring guidelines needed for your customized application, please refer to the SACQ Manual. In case you do not have (or have direct access to) the SACQ Manual (W-228B), this message serves for the next 60 days as your authorization to purchase one at 20% Research Discount (and note that discounted orders cannot be completed over our website); if you have

questions about ordering the Manual, contact WPS Customer Service at 800/648-8857 or 310/478-2061, weekdays 7:30am to 4:30pm Pacific.

WPS appreciates your research interest in the SACQ, as well as your consideration for its copyright. Please feel free to contact me if you have any questions. I look forward to your reply.

Sincerely yours,

Fred Dinkins
Rights & Permissions Specialist
WPS Rights and Permissions
e-mail: fdinkins@wpspublish.com

FD:fd

I agree to the terms stated herein.

Date Samantha J. Herrick, The Pennsylvania State University

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May 20, 2010

Samantha Herrick
Doctoral Student
The Pennsylvania State University
Re: *Student Adaptation to College Questionnaire (SACQ)*

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Sincerely yours,

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EDUCATION

Ph.D., Counselor Education and Supervision, Penn State University, May 2011
M.S., Rehabilitation Counseling and Disability Studies, Springfield College, August 2005
B.A., Communications, University of Rhode Island, May 1996

PROFESSIONAL EXPERIENCE

- **Counselor**, CEDAR Clinic, Counselor Education, The Pennsylvania State University, University Park, PA, August 2007 – December 2007, September 2008 – December 2008
- **Undergraduate Advisor, Disability Specialist & Research Graduate Assistant**, Office of Disability Services, The Pennsylvania State University, University Park, PA May 2008 – August 2008 & September 2009 – December 2010
- **Counselor Supervisor** (Doctoral Supervision Practicum), Counselor Education, The Pennsylvania State University, State College, PA, January 2009 – May 2009
- **Co-instructor**, (Teaching Practicum) The Pennsylvania State University, State College, PA, September 2008 – December 2008.
- Graduate Assistantship), Counselor Education, The Pennsylvania State University, University Park, PA, August 2007 – May 2009
- **Access Specialist**, Disability Resource Center, State University of New York at New Paltz, Disability Resource Center, New Paltz, NY, October 2006 – August 2007
- **Specialist for Disabilities and Learning**, Center for Academic Development and Learning, State University of New York at New Paltz, New Paltz, NY, August 2005 – October 2006
- **Co-instructor** (Graduate Associateship), **Rehabilitation Counseling Department**, Springfield College, Springfield, MA, September 2003 – May 2005
- **Program Manager/Employment and Training Division**, Goodwill Industries of the Berkshires, Pittsfield, MA, August 2001 – August 2003
- **Employment Specialist**, Berkshire Vocational Services, Pittsfield/Greenfield, MA, November 2000 - August 2001

CERTIFICATIONS

National Certified Counselor (NCC # 239425; certified since 2008)
Certified Rehabilitation Counselor (CRC #00083543; certified since 2005)