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THE RELATIONSHIP BETWEEN THE USE OF ACADEMIC ACCOMMODATIONS AND SUCCESSFUL PROGRAM COMPLETION OF STUDENTS WITH DISABILITIES AT COMMUNITY COLLEGES

A Dissertation submitted in partial fulfillment of the requirements for the degree of Ph.D.in
Special Education at Virginia Commonwealth University.

by

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Table of Contents

Acknowledgements.....	ii
List of Tables.....	vi
Abstract	vii
Chapter 1 INTRODUCTION	
Introduction	1
Statement of Problem.....	3
Purpose of the Study.....	6
Research Questions.....	7
Research Design.....	7
Chapter 2 LITERATURE REVIEW	
Introduction.....	10
Academic Accommodations.....	10
Faculty Perception of Accommodations.....	14
Community College and University Environments.....	16
Prevalence of Disabilities on College Campuses.....	17
Supported Education.....	19
Chapter 3 METHODOLOGY	
Description of Design.....	22
Data Sampling.....	22
Sample Demographics.....	23
Disability Categories.....	25
Community College Demographics.....	28

Research Questions and Hypothesis.....	30
Study Variables.....	31
Data Analysis.....	34
Delimitations.....	37
Chapter 4 Findings	
Introduction.....	38
Description of the Sample.....	39
Research Findings.....	39
Research Question 1.....	40
Research Question 2.....	41
Research Question 3.....	42
Research Question 4.....	43
Research Question 5.....	44
Research Question 6.....	45
Research Question 7.....	46
Summary.....	47
Chapter 5 Discussion	
Introduction.....	51
Key Findings of the Study.....	52
Limitations.....	55
Implications for Research.....	56
Implications for Practice.....	58
Conclusion.....	59

References.....	61
Vita.....	70

List of Tables

Table 1: Students with Disabilities Demographic Information.....	22
Table 2: Disability Categories.....	23
Table 3: Community College Demographics.....	25
Table 4: Research Variables and Statistical Analysis.....	29
Table 5: Summary of Findings Related to Question 1B.....	33
Table 6: Summary of Findings Related to Question 2A.....	33
Table 7: Summary of Findings Related to Question 2B.....	34
Table 8: Summary of Findings Related to Question 3.....	35
Table 9: Summary of Findings Related to Question 4B.....	36
Table 10: Summary of Findings Related to Question 6B.....	37

Abstract

THE RELATIONSHIP BETWEEN THE USE OF ACADEMIC ACCOMMODATIONS AND SUCCESSFUL PROGRAM COMPLETION OF STUDENTS WITH DISABILITIES AT COMMUNITY COLLEGES

By Mark A. Richardson

A Dissertation submitted in partial fulfillment of the requirements for the degree of Ph.D. in
Education at Virginia Commonwealth University.

Director: Dr. Colleen Thoma, Professor, School of Education

The purpose of this study was to examine the relationship between the use of academic accommodations and successful program completion of students with disabilities enrolled in two campuses of a community college. Current and past research has focused on the role, faculty perception and student satisfaction of Disability Support Services (DSS) at postsecondary institutions. However, evidence that the use of academic accommodations actually aids in the successful program completion rate of post secondary students with disabilities does not exist. A causal-comparative research method was used to examine secondary data provided by the Office of Student Accommodations located at two community college campuses to determine whether a relationship exists between successful program completion and use of academic accommodations, disability category, academic program and academic campus setting. This study also examined whether the use of academic accommodations varied by disability category, academic campus setting, academic program and successful program completion. Results indicated that users and non-users of academic accommodations are both highly successful in completing their programs. Some differences were found in use of academic accommodations related to student disability and college campus (urban versus suburban) but not in relation to academic program. Results of this study and the impact of these findings are discussed.

CHAPTER 1

Introduction

A number of important outcomes have been associated with continuing one's education beyond high school; in fact, the economic value of a two or four-year degree from a college or university is well-established (Baum & Ma, 2007; Bureau of Labor Statistics, 2007; Mischel, Bernstein & Allegretto, 2007). Baum & Ma (2007) documented the average annual salary for those who earned a high school diploma (average \$31,500), an associate degree (\$40,600), or a bachelor's degree (\$50,900). This clearly demonstrates the increased earning potential associated with continuing one's education beyond high school. Similar findings have been documented for individuals with high incidence disabilities who continue their education after high school (Blackorby & Wagner, 1996). There are other benefits to continuing one's education after high school, in fact, persons with associate and bachelor degrees were also more likely than high school graduates to be offered employer-provided pensions and health insurance and less likely to be unemployed (Baum & Ma, 2007; Bureau of Labor Statistics, 2007; Mischel, Bernstein & Allegretto, 2007).

In addition to the long-term economic benefits of post-secondary education, other important benefits have been documented as well. McMahon (2009) provided evidence that participating in higher education is associated with long-term benefits such as better health and longevity, higher reported happiness, and greater participation in civic, charitable and democratic institutions. Participation in postsecondary education has also been associated with the development of independence, lifelong friendships and professional relationships, and higher self-esteem (NCES, 2006).

Similar positive outcomes related to participation in postsecondary education have also been found for individuals with disabilities. Research shows that successful college completers can expect careers and incomes comparable to those of their non-disabled peers (Task Force on Post Secondary Education, 2000; Madaus, 2006). It even suggests that in this age of technology and self sufficiency, the successful attainment of a post-secondary degree is the most effective means for individuals with disabilities to achieve financial independence and equality (Stodden & Dowrick, 2000). In fact, completion of any type of postsecondary education (vocational, certification program or one college course) significantly improves the chance that individuals with disabilities will secure meaningful employment (Zafft, Hart, & Zimbrich, 2004).

While the benefits of obtaining postsecondary education and/or training for individuals with and without disabilities have been well-documented, the reality is that only 37% of all students with a disability who have graduated from high school enter into some type of postsecondary education, compared to 78% of all high school graduates (Blackorby & Wagner, 1996). This is despite the fact that postsecondary education is a primary post-high school goal for more than 80% of secondary school students with disabilities (Cameto, Levine, & Wagner, 2004). A number of national efforts have been initiated to address this issue, including provisions in the Higher Education Opportunity Act of 2008 designed to foster access to college through national advocacy centers, use of universal design for learning, and enhanced financial aid (PL 110-325, 2008). The Health Care and Education Reconciliation Act of 2010 (PL 111-152) includes provisions that address elements of President Obama's educational agenda including a commitment that all Americans complete at least one year of postsecondary education to better prepare for twenty-first century employment.

Statement of Problem

Program Completion

There is increasing evidence that suggests that many students with disabilities who enroll in postsecondary institutions have difficulty remaining enrolled and actually completing their degree requirements. The National Summit Proceedings (2002) reported that youth with disabilities are less likely to persist and take a longer time to complete their degrees once enrolled (Tagayuna, et al, 2005). The National Center for Educational Statistics (1994) found that 52% of students with learning disabilities versus 64% of students without disabilities attained their target degree (Mull, Sitlington, & Alper, 2001). Recent research on the postsecondary school attendance and completion rates of high school graduates with learning disabilities (Murray, 2000) found that of the students with learning disabilities who had attended postsecondary education institutions, 80% had not graduated 5 years after high school, compared to 56% of youth with no disabilities. Ten years after graduation from high school, 56% of youth with learning disabilities had not graduated from postsecondary education, compared to 32% of individuals without disabilities. Furthermore, analyses of data from the National Comorbidity Survey (1995) indicated that an estimated 86% of individuals who have a psychiatric disorder withdraw from college prior to completion of their degree (Collins & Mowbray, 2005).

A large majority of students with disabilities who enroll in community colleges, but do not successfully complete their programs are from low-income backgrounds, work part-time or full-time, and are faced with pressures from family and work. This is troubling since postsecondary education has been recognized as a vital part of preparing for a career (Stodden & Dowrick, 2000), and is closely related to overall lifetime earnings and economic self-sufficiency

(Henderson, 1999; Kaye, 2000). This outcome for this population aids in perpetuating a cycle of low employment, reduced independence and lower standards of living.

Disability Support Services

Gaining access to post secondary institutions for student with disabilities has been accomplished through federal mandates, however, once students with disabilities have been admitted into college they require various amounts of academic assistance to remain enrolled and actually graduate. To bridge the gap between being accepted into college and successful completion, Disability Support Services (DSS) at postsecondary institutions have been developed to provide academic and physical accommodations.

Students with disabilities and their parents do not believe that postsecondary educational institutions are able to provide the accommodations, modifications, and/or services that students with disabilities need to be successful (Grigal & Neubert, 2004). Colleges are required to provide reasonable accommodations necessary to provide equal access under Section 504 of the Rehabilitation Act or the Americans with Disabilities Act (ADA) (McGuire, 2010; Shaw, Madaus, & Bannerjee, 2009), but they are not required to provide the same level of individualized education and the number of accommodations, supports, services and modifications that could have been part of a student's public education. Shaw (2009) outlined some of the differences between high school and postsecondary education in relation to the provision of academic accommodations for students with disabilities, including the fact that students need to be self-advocates by following university procedures to request any accommodations they might need. Furthermore, Shaw, Madaus, & Dukes (2010) point out additional differences, including:

- a) Accommodations needed in one course might not be needed in all courses

- b) Typical accommodations required by students with disabilities might already be provided to all students in the class, i.e., the use of computer technology, posting of notes to a course website, use of universal design for learning in course design and delivery; and
- c) Student must provide documentation of his/her disability that also includes sufficient information needed to determine appropriate accommodations. The coordination needed to provide these accommodations is the responsibility of a centralized office for students with disabilities.

Most community colleges and universities have a Disability Support Services (DSS) office to provide that centralized coordination of supports, services and accommodations for students with disabilities. Much has been written to describe the services provided by DSS offices as well as faculty and student perception of DSS at postsecondary institutions (McClearly-Jones, 2007; Finn, 1999; Szymanski, 1999; Collins, et al., 2005; Quick, et al, 2003; Neubert, et al., 2001; Mull, et al., Collins & Mowbray, 2005; Getzel & Thoma, 2008). This study will focus primarily on accommodations provided by DSS offices at community colleges for two reasons: 1) more students with disabilities attend community colleges than four year universities; and 2) although many of these students receive accommodations set up by the (DSS), there is relatively little research to validate this approach to supporting student success in these educational settings. It is a practice with little evidence to support its use or the belief that the disability services offered at a community college can be the deciding factor for student successful completion of graduation requirements.

Purpose of the Study

Research supports the notion that students with disabilities attend two-year community colleges more frequently than four-year universities because community colleges have an open-door policy, a mission statement directed towards serving the community's educational needs and have recognized the fact that many entering students may require developmental remedial education in reading, math, writing, and vocabulary; and vocational assessment (Young & Staebler, 1987; Norton, 1992; Almeida, 1991; Bigaj et al, 1993). Although community colleges have devoted resources to developmental education and disability accommodations in the hopes of making their environments ideal for students with disabilities to thrive; little evidence, if any, exists to suggest that students with disabilities, once enrolled in community college programs, persist until graduation. In addition, little research has been conducted to evaluate the effectiveness of academic accommodations. Therefore, this study examined the relationship between the use of academic accommodations and successful program completion of students with disabilities at two campuses of a large community college. Study findings can inform state and federal policy and postsecondary disability support services, with the goal of better serving students with disabilities to increase their postsecondary graduation rates and subsequent positions in their communities and society.

Research Questions

The specific research questions addressed by this study will be:

- 1) Is there a relationship between program completion and use of academic accommodations?
- 2) Is there a relationship between student disability classification and use of academic accommodations?
- 3) Is there a relationship between student disability classification and program completion?
- 4) Is there a relationship between academic campus setting and use of academic accommodations?
- 5) Is there a relationship between academic campus setting and program completion?
- 6) Is there a relationship between program/major (i.e., certificate vs. Associates Degree program) and use of academic accommodations?
- 7) Is there a relationship between program/major (i.e., certificate vs. Associates Degree program) and program completion?

Research Design

Causal Comparative Research

A causal-comparative research methodology was used to determine whether the delivery of academic accommodations has an influence on the program completion rates of students with disabilities attending community colleges. Causal-comparative designs are commonly employed in the evaluation of educational programs when random assignment is not possible or practical (Gersten, 2005; Gribbons, 1997; Kerlinger, 1973; Lehman & Mehrens, 1979; Lenell & Boissoneau, 1996). Since this study will be based on secondary quantitative data, the

employment of this particular research methodology is considered most appropriate. The feasibility of the study is heightened by the casual comparative research design, Institutional Review Board exemption, and use of the analytical computer software Statistical Package for the Social Science (SPSS).

Sample

The study participants consisted of 915 community college students who self disclosed their disability with the Office of Student Accommodations at a large two-campus community college located in the south eastern United States. All study participants were required to produce disability documentation (i, e., Vocational Assessment, Individual Education Plan (IEP), Psychological Assessment) and were consequently determined to be eligible to receive post secondary academic accommodations (PSAA).

Research Variables

The dependent variable in this study, successful program completion, is operational zed as a student who has successfully (a) completed all program requirements as specified in their program catalog, (b) earned a grade point average of at least 2.000 in the Curriculum and (c) been recommended by the school dean for graduation. The studies independent variables are (1) use of academic accommodations, (2) disability category, (3) academic program and (4) academic campus setting. This study will also examine whether there exists a relationship between a dependent variable (use of academic accommodations) and independent variables (disability category, academic campus setting, academic program and successful program completion).

Data Collection and Management

This quantitative study is based on secondary data provided by the participating community college's Office of Student Accommodations and Office of Institutional Effectiveness. The data

was collected in two waves. Student accommodation data (frequency of post secondary accommodation usage and type of disability) were the focus of data obtained during wave one. Data collected during the second wave (program completion, major/program and campus setting) were collected by the Office of Institutional Effectiveness. The data was reviewed for accuracy and removed of all information (student identification number, social security number and name) that would identify members of the sample.

Data Analysis

A large number of this studies research questions involve two dichotomous variables (program completion, academic campus setting, program major and use of academic accommodation), and therefore the phi coefficient is the preferred statistic in these instances. For questions that involve categorical variables (disability classification), the chi square statistic is used to investigate whether distributions of each categorical variable differ from one another. Research questions that involve continuous variables (frequency of use of accommodations) will employ an independent samples t test for the comparisons of means of two groups.

CHAPTER 2

Introduction

Literature Review

The Americans with Disabilities Act of 1990 (ADA) mandated accessibility to postsecondary education for students with disabilities and the Individuals with Disabilities Education Act of 1997 (IDEA) included postsecondary education as a major secondary education outcome for this population. The passing of such historical legislation, coupled with an increased interest in positive outcomes for individuals with disabilities, has helped spawn the rationale for postsecondary academic accommodations (PSAA). The following chapter reviews the current literature surrounding the impact and/or use of post secondary academic accommodations, post secondary faculty perception of academic accommodations and students with disabilities, the prevalence of students with disabilities on college campuses, and the role of Disability Support Services (DSS). It further outlines the paradigm of supported education and its contribution to transitioning students with disabilities into post secondary environments. The purpose of this study is outlined and the contribution of this research is defined. The literature review process was conducted using several search engines, libraries, and sources including: googlescholar, ProQuest, dissertations, journal articles, books, and ERIC.

Academic Accommodations

Within the available literature, extended time on test is consistently mentioned as the most requested and prescribed PSAA (Farrell, 2003; Lancaster, Mellard, & Hoffman, 2001). Minimal research has been conducted to determine the effectiveness of postsecondary accommodations. Although most requested, research conducted to determine its effectiveness has

resulted in inconsistent findings and the validity of test scores obtained under this condition is open to question because many believe that non-learning disabled students might also benefit from extra examination time. For example, Hill (1984) studied the performance of 48 students with learning disabilities and 48 non-learning disabled students on the Nelson-Denny Reading Test and the American College Test (ACT). Half of the participants in each group were administered the tests under standard-timed conditions, with a time limit of 35 min for the Nelson-Denny Reading Test and 2 hr 40min for the ACT. The other half of the participants were given these two tests under untimed conditions. The ACT test scores suggested that (a) under timed conditions, the performance of students with learning disabilities was significantly lower than that of non-learning disabled students; (b) under untimed conditions, this difference disappeared, and the performance of the two groups were not significantly different; (c) students with learning disabilities had significantly higher scores in the untimed condition; and (b) non-learning disabled students did not show a significant difference between timed and untimed conditions. Thus, the results suggested that only students with disabilities benefited from the untimed condition on the ACT.

The results of the Nelson-Denny Reading Test were not as clear cut, (a) under timed conditions, the performance of students with learning disabilities was significantly lower than that of the non-disabled students, but on vocabulary, the two groups did not significantly differ; (b) under untimed conditions, the two groups did not differ significantly on any score; (c) students with learning disabilities showed a significant increase between timed and untimed conditions on all scores; and (d) non-learning disabled students also showed a significant increase between timed and untimed conditions on total scores and vocabulary sub-scores, but not on comprehension sub-scores. The fourth finding supports the notion that non-learning

disabled students benefit from extra time on test and thus, do not have the opportunity to show their maximum potential under timed conditions.

The purpose of the study conducted by Alster (1997) was to assess the effects of extended time on algebra test scores of community college students with and without learning disabilities. In this study, forty-four students with learning disabilities and 44 students without learning disabilities took an algebra test under timed conditions and a comparable test under extended-timed conditions. The two groups were matched for age, gender, ethnicity, language background, and math achievement. The mean age of the students with learning disabilities was 26.7 and the mean age of students without learning disabilities was 25.3. Twenty-seven (61%) of the students with learning disabilities were female and 17 (39%) were male. The gender breakdown of the non-LD students was identical. For both groups the ethnic breakdown was the same: (57%) were Caucasian, (32%) were Mexican American, (7%) were Asian, (2%) were African American and (2%) were Native American. The results were that the students with learning disabilities scored significantly lower than the students without learning disabilities under timed conditions, the scores of the students with learning disabilities increased significantly with extended time, and the scores of the students with learning disabilities under extended timed conditions did not differ significantly from the timed or extended-time scores of the students without learning disabilities. The results of this study support the idea that students with learning disabilities perform significantly lower than non-LD students on algebra tests under timed conditions. The results also support the idea that extended-times scores of students with learning disabilities do not differ significantly from timed or extended timed scores of non-LD students.

Although the current assumption is that postsecondary students with disabilities are best served by extending the time they have to take a test. A few studies have emerged that indicate the use of pace item academic testing and computer-based test accommodations as viable options. Lee, Osborne, Hayes, and Simoes (2008) designed a mixed methods sequential explanatory study to explore the relationship between computer-paced and student paced item presentation on the academic test performance in college students diagnosed with ADHD. The study included 21 students with a diagnosis of ADHD enrolled in a mid-sized public university in the south-western United States. Of the 21 participants, 11 were males and 10 were females; 15 were Caucasian, 4 Hispanic, 1 African American, and 1 Island Pacific/Other. The participants were randomly assigned to 1 of 2 testing conditions. Half of the participants were provided a computer paced condition, and half were provided a student paced testing condition within a computer based environment. In the computer paced condition, test items were displayed on the screen in a simple grey color, had a clock display in the upper right hand corner of the screen for the timed portions of the experiment, and provided an auditory tone when a screen was advanced. Test items were displayed in a controlled sequence; the participants were unable to return to previously answered questions. Participants wore headphones during the experiment in order to hear the tone alerting advancement to the next question. Students in the computer paced condition were allowed 90 seconds per question and were forced to move on to the next question when the time expired. If the student answered the question before the maximum time allowed, s/he could manually advance to the next question. In the student-paced testing condition, students were allowed an average of 90 seconds per question but were not forced to move on to the next question. Students in this condition paced themselves by using a clock on the screen that counted down the total time allowed for answering the 11 multiple choice test questions. Focus

group interview were also conducted immediately following the test administration to discern the students' perceptions of the value of the various components of the testing environment.

Although no significant differences were found in performance scores between the students tested under the two conditions, the qualitative data suggested that both test accommodations provided students with a beneficial structure and format conducive to their overall successful performance.

Faculty Perception of Accommodations

The primary purpose of the study conducted by Sweener, Kundert, May, and Quinn (2002) was to explore community college faculty comfort with providing academic accommodations to students with intellectual disabilities as well as student comfort with requesting accommodations from faculty members. The entire instructional faculty (N=224), at a two year, public, open admissions community college were included in the study. The faculty sample consisted of an almost even number of men (112) and women (113). Most of the respondents had Master's degrees (74%), 11% had doctorates and 12% had Bachelor's degrees. The student cohort for the study consisted of 31 freshman who had been diagnosed as having a learning disability prior to college entrance and who had voluntarily disclosed this information to the college Disability Support Services (DSS) upon application for admission. The study employed an Accommodation Survey, designed in two forms to ascertain (a) faculty willingness to make accommodations and (b) student willingness to request accommodations. The Accommodations Survey was based on a Likert-type rating scale of 1 to 5, with higher scores reflecting greater comfort providing or requesting accommodations. Both faculty and student responses on the survey rating scale reported a neutral level of comfort providing or asking for accommodations for students with intellectual disabilities. The neutrality of faculty perceptions

found in this study stands in contrast to other research (Matthews, et al., 1987; Nelson, et al., 1990; Vogel, et al., 1999; Houck, et al., 1992; Norton, 1997) that demonstrated a relatively high degree of overall willingness of faculty to provide accommodations. This study also found wide variability in responses as a function of type of accommodation. Faculty members were very receptive, for example, to accommodations that allowed students extended time or a change of setting for test taking. However, responses indicated significant lower levels of acceptance of accommodations that required extra instructor time and effort or were more intrusive programmatically. Examples of items with lower acceptance rates included: (a) course substitutions; (b) withdraw from course after official date; (c) increased frequency of examination; (d) extra credit assignments; and (d) no deductions for writing mechanics (i.e., grammar, spelling, etc.).

The results of Skinner's (2007) investigation into the willingness of postsecondary faculty to provide instructional and examination accommodations and their support of course alternatives shed further light on this discussion. Two hundred and fifty three faculty members teaching at a mid-sized, liberal arts institution located in the southeastern United States were surveyed. Although survey participants were well represented and fairly evenly distributed at full, associate, and assistant professor ranks, considerably fewer responses were obtained from instructors and faculty in the School of the Arts and the School of Business. The survey employed in this study was designed to collect three types of data: (a) background information (years teaching at college level, academic rank, school and department, and an estimate of the number of students with learning disabilities requiring accommodations in their classes over the past five years), (b) willingness to provide specific accommodations, and (c) level of agreement with providing course alternatives for the college's general education mathematics and foreign

language requirements. Responses were converted to numerical data for analysis purposes (e.g., very willing=5, willing=4, strongly agree=5, agree=4). Although faculty members as a whole expressed a willingness to provide examination and academic accommodations to students with disabilities, many classroom adjustments received “neutral” ratings, with willingness to provide extra credit ranked as “unwilling”. On average, instructor willingness to provide accommodations and course adjustments varied as a function of school affiliation (i.e., School of Business-*neutral*; education, mathematics and science –*willing*). Agreement with providing alternatives to mathematics and foreign language course requirements was also mixed. Although the mean rating for all faculty members was in the neutral to agree ranges, faculty from the School of Business disagreed with the provision of course alternatives.

Community College and University Environments

Students with disabilities who plan on attending post-secondary institutions have contrasting options to choose from. On one hand, community colleges tend to focus on specific areas of student preparation. For example, community colleges often provide a wide range of services to address the under prepared learner such as testing and career counseling, General Education Development (GED) training, Dual Enrollment programs, remedial education and opportunities to transfer to four colleges and universities (Young & Staebler, 1987). Community colleges have an open door admissions policy and recognize the fact that a large number of its students may not possess the academic skills necessary to successfully complete their chosen program (Norton, 1992). Thus, it should be expected that this type of environment will attract the interest of individuals with disabilities seeking post secondary education opportunities.

On the other hand, four year colleges or universities expect students to possess basic and advanced academic skills upon entering its classrooms (Finn, 1999), offering less emphasis on

remedial and/or vocational training (Nelson & Lignugaris-Kraft, 1989). At four-year colleges or universities the focus is on research and scholarly initiatives. Students with intellectual disabilities who attend universities are often involved in special admissions procedures because they have not met admissions criteria based on class rank and scores on standardized entrance exams (McGuire, Norlander, & Shaw, 1990).

Prevalence of Students with Disabilities on College Campuses

Learning disabilities (LD) are the most common form of disability found in the college age population (Eliason, 1992). A learning disorder is not a single disorder, but a group of related disorders with different characteristics, requiring different types of treatments and/or accommodations (Eliason, 1992; Mcleary-Jones, 2008). Often used to describe the seemingly unexplained difficulty a person has in acquiring basic academic skills, LD is defined as a neurological disorder that affects the brain's ability to receive, process, store and respond to information (NCLD, 2005), therefore, limiting or impairing a person's ability in the areas of listening, speaking, reading, writing, and mathematics.

Specific Learning Disability (SLD) is the term used in the federal law for any of the following learning disorders: dyslexia, dyscalculia, dysgraphia, dyspraxia, auditory processing disorder, visual processing disorder, and attention deficit hyperactive disorder (ADHD) (NCLD, 2005; LDA, 2005). The condition varies in its manifestation and in degree of severity. A majority of students with learning disabilities have turned to two year colleges for their educational needs. Data reported in 1991 from the National Longitudinal Study of Special Education Students found that persons with learning disorders attended two-year vocational, community, or junior colleges more frequently than four-year colleges and universities (Bigaj, 1995). Furthermore, Barnett (1992) reported that community colleges serve the largest segment of disabled students, enrolling

up to 71 percent of all postsecondary students with disabilities (McCleary-Jones, 2007).

Although students with LD/SLD make up the largest percentage of students with disabilities enrolled in post-secondary institutions, students with diverse disabilities are beginning to consider college as a realistic option.

Autism spectrum disorder (ASD) is a term that is used as an organized rubric for a series of lifelong neuropsychiatric disorders including autism, Asperger Syndrome, and Pervasive Development Disorder (PDD) (VanBereijk, Klin & Volmar, 2008). While PDD is often used interchangeably with the term ASD, Autism on the other hand, is the most widely recognized ASD/PDD (APA, 1994). The hallmark of this disorder is a profound impairment in the social interaction skills of the individual as well as his or her communication skills. Asperger Syndrome (AS) is characterized by severe and sustained impairments in social interaction, and the development of restricted patterns of behaviors and interest. The Center for Disease Control estimates that 1 out of every 166 children in the United States has an ASD (Bertrand et al, 2001). Fombonne (2005) estimates that in 2002 there were between 284,000 and 486,000 individuals with ASDs, under the age of 20 alone, potentially preparing to enroll in post-secondary institutions.

Epidemiological data estimates that 20% of college freshman could potentially be labeled mentally disturbed and in need of mental health care (Offer & Spiro, 1987). The onset of a serious mental illness and/or psychiatric disability can effect an individual's motivation, concentration, and social interactions, all of which are factors that are necessary for success in higher education (Unger, 1998). Although college students with mental illnesses struggle with structural obstacles such as interpersonal discrimination (e.g., lack of awareness or understanding of mental illness by faculty and peers) and gaps in service provisions (e.g., inadequate financial

aid, lack of campus-based mental health services, and lack of information about campus services), that individuals with mental illnesses have educational potential is substantiated by repeated findings that (a) their median educational level is over 12 years and that 20%-50% have some college experience (Collins & Mowbray, 2005), (b) many people with mental illnesses have become actively involved in rehabilitation programs that provide support for educational pursuits (Unger, 1990), and (c) new and improved mental illness medications make it increasingly possible that these individuals can pursue their post-secondary goals (Haefner & Maurer, 2000).

Supported Education

Following the paradigm of supported employment and supported housing, supported education was originally created to address the higher education needs of students with psychiatric disabilities (Mowbray, Bybee & Collins, 2001). Early examples of supported education offered several options to choose from: classroom, mobile support, facilitated groups, individually based, and on-site (Frankie et al, 1996; Moxley, Mowbray, & Brown, 1993; Unger, 1990). Due to the increased number of students, with a variety of disabilities attending post-secondary institutions, more models of supported education are evolving and being implemented in diverse settings.

Harris, Handleman , and Jennett (2005), describe three basic models of supported education for college bound students with autism: home-based, center based and school based. The home-based option provides services in the student's current residence (e.g., how to do laundry and when, personal hygiene, rules, personal relationships, appropriate touching, etc....), typically a dormitory. Given the less structured and more socially complex nature of dormitory living, the home based option plays a critical role in the autistic students success in college. The

center-based option assists students in learning requisite classroom social skills (peer-relations, leisure activities, assessment completion schedules, and time management) in a systematically monitored environment. The school-based model would contrast with the center-based option in its approach to how and where the service to the student is offered. In the school based option, services are provided to the student in his or her classroom settings and general education environment (note-takers, extended test time, alternative test formats). The major advantage of this approach is that it allows the student to enjoy the full extent of the college life experience.

According to Hart (2004), post secondary, supported education programs for students with learning, cognitive, and intellectual disabilities (LCID) typically fall into one of three categories: substantially separate, mixed, and inclusive. Frequently referred to as “life skills” or “transition programs”, student who enroll in substantially separate programs typically do not have ongoing sustained interactions with the general student body and they do not have the option of taking standard college courses with peers that do not have disabilities. The curriculum is primarily focused on community based instruction and usually offer only limited training (e.g., food service, maintenance, clerical, and horticulture), either on or off campus, which provide some semblance of work experience for participants. The mixed program is different from the substantially separate category in that students have some interaction with typical students (e.g., in the cafeteria, at sporting events). Most importantly, students have the option of taking typical classes and being supported in inclusive college courses. Finally, students enrolled in the inclusive model are provided with individual services and supports (e.g., educational coach, assistive technology, and counseling). All services provided in this model of supported education are student centered, based on student choices and preferences, and inclusive of those available to the general student body.

The intent of the study conducted by Getzel, McManus, and Briel (2004) was to determine the effectiveness of a supported-education model and the impact of these services and supports on students' educational outcomes. The model was designed to provide intensive educational supports to a cohort of 26 students with LD and ADHD at a large urban, two campus, four year university in the south eastern United States. Students were either referred into the program due to academic problems, being on academic probation, or falling behind in their coursework. Undergraduate and graduate students from both campuses were represented in the study.

To assess the impact of the model on student outcomes, the study examined the relationship between intensity and frequency of services and student performance and retention. The cohort was divided into two groups (frequent use and infrequent use). Eleven students were identified as part of the "frequent use" group based on their continual contact with staff members and incorporation of supports into their learning routine. Fifteen of the students were identified as part of the "infrequent use" group, because they either did not return for follow-up meetings or were in contact with the staff only once or twice during a semester. A comparison of academic outcomes and average outcomes between the two groups revealed that 8 of the 11 students in the "frequent use" group progressed in good standing in their course of study. None of these students were placed on academic probation or warning and 2 students left VCU for personal reasons. In comparison, 8 of the 13 students in the "infrequent use" group progressed in their program in good standing, 1 student was dismissed from the program, and 4 were placed on academic probation or warning. At the end of the study, GPAs for the two groups showed a significant difference, with the frequent group averaging 3.03 compared to 2.29 for the infrequent group.

CHAPTER 3

METHODOLOGY

Description of Design

A causal-comparative research methodology was used to determine whether the delivery of academic accommodations has an influence on the program completion rates of students with disabilities attending community colleges. Causal-comparative designs are commonly employed in the evaluation of educational programs when random assignment is not possible or practical (Gersten, 2005; Gribbons, 1997; Kerlinger, 1973; Lehman & Mehrens, 1979; Lenell & Boissoneau, 1996). Since this study will be based on secondary quantitative data, the employment of this particular research methodology is considered most appropriate. Through this design, this research questions whether there is a relationship between a dependent variable (successful program completion) and independent variables (use of academic accommodations, disability category, academic program and academic campus setting). This research also studies whether there exists a relationship between a dependent variable (use of academic accommodations) and independent variables (disability category, academic campus setting, academic program and successful program completion).

Data Sampling

This quantitative study is based on secondary data provided by the Office of Student Accommodations at a large two campus community college located in the south eastern United States, and confidential demographic data provided by the college's Office of Institutional Effectiveness. Although the original data base included students with disabilities enrolled during the fall 1996 and fall 2009 semesters, it was decided that since all of the academic and/or

vocational programs offered by the participating community college required at least three semesters (1.5 years) to complete, students enrolled between 2008 and 2009 would not be included in this study as the inclusion of these students would offer only inconclusive findings. Therefore, this study will only include students who (a) provide current documentation of an existing disability (within three years of the request for accommodations) and (b) were successfully enrolled in a two-year degree or one-year certificate program between the fall 1996 and fall 2007 semesters. A preliminary application of these criteria yielded 915 participants, or 84% (915/1085) of the available sample.

Sample Demographics

The participating community college's main/suburban campus is housed on 105 acres of land in three contemporary buildings and features state of the art technology accessibility. The main/suburban campus offers college transfer programs in Liberal Arts, Education, Engineering, Science, and Computer Science, as well as a broad range of Business, Engineering, and Public Service occupational/technical programs. The median household income for the main/suburban campus is \$57,741 per year. The secondary/urban campus is located downtown and is housed in a modern high-rise structure. The secondary/urban campus offers one and two year occupational/technical programs in a number of Allied Health, Business, and Community Service disciplines, as well as Liberal Arts, Business, Science, and Computer Science transfer programs. The median household income for the main/suburban campus is \$ 38,285 per year. According to the secondary data, students with disabilities enrolled more often in Associates of Applied Science programs and chose to attend classes at the main/suburban campus more often than the secondary/urban campus. Table 1 contains other key demographic information about each of the students with disabilities involved in the study.

Table 1

Students with Disabilities Demographic Information

Students with Disabilities	906
Disability Category	
Physical/Mobile	80
Medical	26
Learning	429
Psychological	49
Multiple	113
Not Indicated	208
Academic Program	
Associate of Arts	12
Associate of Science	49
Associate of Applied Arts	2
Associate of Applied Science	64
Career Studies Certificate	51
Not Indicated	708
Campus	
Urban	272
Suburban	633
Median Household Income by Campus	
Urban	\$ 38,285
Suburban	\$ 57,741

Disability Categories

Based on the disability categorical classification system of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) and definitions of disabilities provided by the American with Disabilities Act of 1990, the following five disability categories were developed to describe the immense range of impairments represented in this study:

1. Physical/Mobile
2. Medical/Other Health Related
3. Neurological/Learning
4. Psychological
5. Multiple
6. Not Indicated.

Of the 915 students with disabilities enrolled during the fall 1996 and fall 2007 semesters, students with learning disabilities (47%) represented almost half of the sample, while students with medical disabilities were represented the least (0.02%). Table 2 highlights the definitions of the five disability categories.

Table 2

Disability Categories Involved in the Study

Physical/Mobile	Often require a person to use special equipment like a wheelchair, cane, prosthetic limb, guide dogs and or hearing aid devices. These disabilities include conditions such as spinal cord injury, cerebral palsy, amputation, muscular dystrophy, cardiac conditions, cystic fibrosis, paralysis, polio/post polio and stroke. Since visual and hearing impairments also impede a student's mobility and self-care, students diagnosed with these disabilities will be included in this category as well.
Medical	Medical-related disabilities may affect a student's respiratory, immunological, neurological, and circulatory systems. There are many kinds of medical-related impairments, varying significantly in their effects and symptoms, all of which, as mandated by the Americans with Disabilities Act of 1990, warrant the use of accommodations in post secondary settings. For the purpose of this study, impairment such as cancer, HIV/AIDS, multiple sclerosis, epilepsy, Lupus and chronic fatigue syndrome will all be classified in this category.
Learning	A student with a learning disability often has average or above average intelligence but demonstrates substantially below that expected for age, schooling, and level of intelligence on individually administered, standardized tests in reading, mathematics and written expression. Because the etiology of a learning disability is considered neurological, biochemical and/or developmental (<i>DSM-IV</i>), Attention Deficit, Attention-Deficit/Hyperactivity and Autistic disorders will be included in this category.

Table 2 (*continued*)

Psychological	Psychological disabilities describe a broad range of psychiatric and emotional impairments, such as anxiety, depression, obsessive compulsive, bipolar and personality (schizophrenia) disorders. Students with psychological disabilities may have problems with focusing attention and organizational skills, low self-esteem, completing assignments and examinations within a set period of time, and expressing their thoughts and emotions in a comprehensive manner.
Multiple	Students with multiple disabilities have two or more disabilities (mental retardation-blindness, mental retardation-orthopedic impairment, schizophrenia-ADHD, etc) that, in combination, can cause serious educational problems. Naturally, it should be expected that students with multiple disabilities will exhibited a wide range of behaviors and require a wide range of disability services depending on the combination and severity of the disabilities.

Community College Demographics

The typical student in attendance at the participating community college is enrolled part-time (76%), lives off campus (100%) and holds at least a high school diploma. Close to 40% of the total student enrollment are members of minority groups. The most popular programs of study are in the Health and Clinical professions and the rate of transfer into 4-year programs is 28% for all graduates. In addition to offering academic accommodations via the Office of Disability Services, the college also provides remedial, academic and career counseling as well as employment/placement services for its graduates. Consistent with its open door admission policy, the participating community college admits as either a non-curricular or curricular student, anyone with a recognized high school diploma, GED, certificate of completion of home schooling, or who is 18 years of age and has passed the ability-to-benefit (ATB) test.

The participating community college currently offers a total of 55, two-year Associate of Arts (AA), Associate of Science (AS), Associate of Applied Science (AAS) and Associate of Applied Arts (AAA) degrees as well as one-year Career Studies Certificates (CSC) . Commonly referred to as college transfer or university parallel study, the AA and AS programs are designed for students who plan to complete their freshman and sophomore years of study at the community college level and then transfer to a four-year university of their choice. The AAS and AAA degrees are occupational/technical programs and are specifically designed to prepare students for immediate employment. The CSC programs provide opportunities for upgrading occupational or technical skills, retraining for career change, and investigating new career possibilities. On average, a CSC program can be completed in a short period of time, generally two or three semesters. Table 3 provides demographic information on the total student enrollment of the participating community college.

Table 3

Demographics of Community College Involved in the Study

	<i>n</i>	%
Total School Enrollment	12,557	
Full-Time	3,107	25
Part-Time	9,450	76
Gender		
Male	5,087	41
Female	7,470	59
Racial composition		
Non Residential Alien	96	.8
Black/African American	4,089	33
Hispanic	358	3
Asian/Pacific Islander	500	4
American Indian/Alaskan Native	67	.5
White/Non-Hispanic	7,447	59
Graduation Rates		
Overall		9
By Gender		
Male		7
Female		11
By Race		
Non Residential Alien		.2
American Indian/Alaskan Native		N/A
Black/African American		7
Asian/Pacific Islander		12
Hispanic		.5
White		11

Research Questions and Hypotheses

The successful completion of post-secondary programs of students with disabilities was chosen as a topic because previous research exploring the post secondary experiences for this population focuses primarily on the role, faculty perception and student satisfaction of Disability Support Services. Research measuring the completion rate of post-secondary students with disabilities is scarce. Based on the review of such studies, this research is guided by the following research questions and hypotheses:

- 1) Is there a relationship between program completion and use of academic accommodations?

H1o: There is no relationship between program completion and use of academic accommodations.

- 2) Is there a relationship between student disability classification and use of academic accommodations?

H1o: There is no relationship between student disability classification and use of academic accommodations.

- 3) Is there a relationship between student disability classification and program completion?

H1o: There is no relationship between student disability classification and program completion.

- 4) Is there a relationship between academic campus setting and use of academic accommodations?

H1o: There is no relationship between academic campus setting and use of academic accommodations.

- 5) Is there a relationship between academic campus setting and program completion?

H1o: There is no relationship between academic campus setting and program completion.

- 6) Is there a relationship between program/major and use of academic accommodations?

H1o: There is no relationship between program/major and use of academic accommodations.

- 7) Is there a relationship between program/major (i.e., certificate vs. Associates Degree program) and program completion?

H1o: There is no relationship between program/major and program completion.

Study Variables

This research questions whether there is a relationship between the use of academic accommodations and successful program completion for students with disabilities enrolled in community college programs. The variables included in the study are program completion, disability classification, academic campus, program/major, use of academic accommodations. Table 4 describes each variable in detail. It should be noted that depending on the research question, some variables will be used as both independent and dependent variables.

Table 4

Variable Definitions

Program Completion	Pertains to students who (a) completed all program requirements as specified in their catalog, including curricular admission requirements, (b) earned a grade point average of at least 2.000 in the Curriculum and (c) been recommended by the school dean for graduation and the registrar must certify completion of all graduation requirements.
Academic Campus	Pertains to the location that the student attended class and subsequently received/used academic accommodations.
Disability Classification	Pertains to the broad categorization of each student's disability. Each disability represented in this study was categorized based on the disability categorical classification system of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) and definitions of disabilities provided by the American with Disabilities Act of 1990.

Table 4(*continued*)

Program/Major	Pertains to the academic course of study chosen by a student upon enrollment into the community college.
Use of Academic Accommodations	Pertains to how frequently a student makes use of a prescribed academic accommodation while enrolled in an academic course of study. For the purpose of this study, frequency of use will be track by semester up until the student graduates or discontinues attending classes.

Data Analysis

The feasibility of the study is heightened by the casual comparative research design, Institutional Review Board exemption, and use of the analytical computer software Statistical Package for the Social Science (SPSS). As illustrated in Table 5, a large number of this studies research questions involve two dichotomous variables (program completion, academic campus setting, program major and use of academic accommodation), and therefore the phi coefficient is the preferred statistic in these instances. For questions that involve categorical variables (disability classification), the chi square statistic is used to investigate whether distributions of each categorical variable differ from one another.

Table 4

Research Variables and Statistical Analysis

Research Questions	Dependent Variable	Independent Variable	Statistical Analysis
1) Is there a relationship between program completion and use of academic accommodations?	Program Completion	A. Any Use B. Frequency of Use	A. phi B. chi-square
2) Is there a relationship between student disability classification and use of academic accommodations?	Disability Classification	A. Any Use B. Frequency of Use	A. chi-square B. chi-square
3) Is there a relationship between student disability classification and program completion?	Program Completion	Disability Classification	chi-square
4) Is there a relationship between academic campus setting and use of academic accommodations?	Academic Campus Setting	A. Any Use B. Frequency of Use	A. phi B. chi square
5) Is there a relationship between academic campus setting and program completion?	Program Completion	Academic Campus Setting	phi

Table 4 (continued)

Research Questions	Dependent Variable	Independent Variable	Statistical Analysis
6) Is there a relationship between program/major and use of academic accommodations?	Program/Major	A. Any Use B. Frequency of Use	A. phi B. chi-square
7) Is there a relationship between program/major and program completion?	Program Completion	Program/Major	phi

Delimitations

The present study involved a total sample of 916 students with disabilities enrolled in a two-campus community college and most of its research questions were addressed with data from a large number of subjects. Although this studies finding, as stated before, may not be generalized to other community colleges and postsecondary institutions, its findings can reasonably be used to evaluate the participating community college's office of DSS and the differences in quality and effectiveness of services provided between the two campuses.

CHAPTER 4

FINDINGS

INTRODUCTION

The purpose of this study was to determine the relationship between the use of academic accommodations and successful program completion of students with disabilities enrolled in community colleges. For questions associated with the use of academic accommodations, two types of questions were asked in order to identify its influences on program completion, across disability classifications, academic campus setting and program/major. One set of questions about the use of academic accommodations specifically, and another set of questions pertaining to how frequent a student made use of accommodations while enrolled in an academic program. The chapter is organized into three primary sections: (a) description of the sample, (b) research findings, and (c) summary of findings. Tables are provided immediately after each applicable narrative discussion.

Description of the Sample

This study is based on secondary DSS data provided by a large two campus community college located in the south eastern United States and confidential demographic data provided by the college's Office of Institutional Effectiveness. The original data base included 1085 students with disabilities enrolled during the fall 1996 and fall 2009 semesters, however, upon careful examination it was decided that students admitted during the 2008 and 2009 semesters would not be included as the inclusion of these students would offer only inconclusive findings. The application of this criterion resulted in a sample of 915 participants, or 84% (915/1084) of the original data set. The participating community college offers a total of 55, two-year (AA), (AS), (AAS) and (AAA) degrees as well as one-year (CSC). Of the 915 students with disabilities enrolled during the examined semesters, a large number (77%) did not declare a major. Across disability categories, students with learning disabilities (47%) represented almost half of the sample, while students with medical disabilities were represented the least (0.02%).

Research Findings

A large number of this studies research questions involve two dichotomous variables, therefore the phi coefficient is the preferred statistical analysis in these instances. The chi square statistic was employed for questions involving categorical variables. The information presented in this chapter details the results of all statistical data analyses associated with this study.

Findings Related to Research Question 1

The first research question associated with this study asked,

- a. **Is there a relationship between program completion and use of academic accommodations?** This research question was addressed using the phi coefficient statistic because the dependent variable (program completion) and independent variable (use of accommodations) were dichotomous. Findings indicate that 78.5% of program completers received accommodations and 76% of non-program completers received accommodations, therefore, the use of academic accommodations was not significantly ($\phi=0.02$) related to successful program completion.

- b. **Is there a relationship between program completion and the frequency of use of academic accommodations?** This research question was addressed using the chi square statistical analysis, as the independent variable (frequency of use) is categorical. Based on the results of the chi-square statistical analysis ($\chi=7.8$, $df = 2$, $p<.05$.), successful program completion was mildly related to how frequent a student used academic accommodations. As illustrated in table 6, non-program completers were somewhat more likely to never use academic accommodations and program completers more likely to use academic accommodations infrequently.

Table 6.***Frequency of Use of Accommodations by Program Completion***

	Never	Infrequently	Frequently
Program completers	21.1%	29.4%	49.4%
Program non-completers	27.8%	20.3%	51.9%

Findings Related to Research Question 2

The second research question associated with this study asked,

- a. **Is there a relationship between student disability classification and use of academic accommodations?** This research question was addressed using the chi square statistical

analysis, as the independent variable (disability classification) is categorical. The results of the analysis indicated a moderately significant finding ($\chi=11.4$, $df=4$, $p<.05$). As illustrated in Table 7, students with medical and physical disabilities were less likely to access accommodations than those with other disabilities.

Table 7.***Use of Accommodations by Disability***

	Percent
Neurological	87.9%
Physical	82.1%
Psychological	91.7%
Medical	72.0%
Multiple	92.9%

- b. **Is there a relationship between student disability classification and frequency of use of academic accommodations?** This research question was addressed using the chi square statistical analysis, as both the dependent variable (disability classification) and independent variable (frequency of use) were categorical. The results of the analysis indicated moderately significant findings ($\chi=20.1$, $df=8$, $p < .01$). As reported in Table 8, students with medical and physical disabilities were more likely to never access accommodations and less likely to use accommodations frequently.

Table 8.

Frequency of Use of Accommodations Across Disability Groups

	Never	Infrequently	Frequently
Neurological	12.1%	29.7%	58.2%
Physical	17.9%	40.5%	41.7%
Psychological	8.3%	34.6%	56.3%
Medical	28.0%	26.8%	45.2%
Multiple	7.1%	39.2%	53.6%

Findings Related to Research Question 3

The third research question associated with this study asked,

Is there a relationship between student disability classification and program

completion? This research question was addressed using the chi square statistical

analysis, as the dependent variable (disability classification) is categorical. The results of

the analysis were not significant ($\chi=0.68$, $df=4$). As reported in Table 9, students with disabilities did not successfully complete their programs of study at a high rate. Students with medical disabilities were less likely to successfully complete their program than students with other disabilities.

Table 9.

Program Completion Rates by Disability

	Percent
Neurological	20.1%
Physical	21.8%
Psychological	18.8%
Medical	16.0%
Multiple	18.9%

Findings Related to Research Question 4

The fourth research question associated with this study asked,

- a. Is there a relationship between academic campus setting and use of academic accommodations?** This research question was addressed using the phi coefficient statistic because the dependent variable (academic campus setting) and independent variable (use of accommodations) were dichotomous. Findings indicate a strong relationship ($\phi=0.37$, $p<.0001$) between academic campus setting and use of academic accommodations. Students with disabilities enrolled at the suburban campus (83.4%)

were more likely to access accommodations than students with disabilities (47%) enrolled at the urban downtown campus.

- b. Is there a relationship between academic campus setting and frequency of use of academic accommodations?** This research question was addressed using the chi square statistical analysis because the independent variable (frequency of use) is categorical. Based on the results of the chi-square statistical analysis ($\chi=281.7$, $df= 2$, $p<.0001$), academic campus setting was significantly related to how frequent a student used academic accommodations. As illustrated in Table 10, students with disabilities at the suburban campus were more likely to access accommodations frequently than students with disabilities at the urban downtown campus. Students at the urban campus were more likely to never access accommodations.

Table 10.

Frequency of Use of Accommodations Across Campuses

	Never	Infrequently	Frequently
Urban	52.8%	39.1%	8.1%
Suburban	16.6%	24.5%	58.9%

Findings Related to Research Question 5

The fifth research question associated with this study asked,

Is there a relationship between academic campus setting and program completion?

This research question was addressed using the phi coefficient statistic because the dependent variable (academic campus setting) and independent variable (program

completion) were dichotomous. Findings indicate a significant relationship ($\phi = 0.14$) between academic campus setting and successful program completion. Students with disabilities enrolled at the urban (17.7%) downtown campus were significantly less likely to successfully complete their program than students with disabilities enrolled at the suburban (30.3%) campus.

Findings Related to Research Question 6

The sixth research question associated with this study asked,

- a. **Is there a relationship between program/major and use of academic accommodations?** This research question was addressed using the phi coefficient statistic because the dependent variable (program/major) and independent variable (use of accommodations) were dichotomous. Findings indicate a non-significant relationship ($\phi = 0.12$) between program/major and use of academic accommodations. Students with disabilities enrolled in two year AA (81%) programs used accommodations more than students enrolled in CSC (70%) programs. There was however, no significant difference.

- b. **Is there a relationship between program/major and frequency of use of academic accommodations?** This research question was addressed using the chi square statistical analysis because the independent variable (frequency of use) is categorical. Based on the results of the chi-square statistical analysis ($\chi = 5.3$, $df = 2$), program/major was not significantly related to how frequent a student used academic accommodations. As illustrated in Table 11, students with disabilities enrolled in AA programs were just as

likely to frequently use academic accommodations as students with disabilities enrolled in CSC programs.

Table 11.

Frequency of Use of Accommodations by Academic Program

	Never	Infrequently	Frequently
Associate Degree	21.1%	29.4%	49.4%
Certificate Program	27.8%	20.3%	51.9%

Findings Related to Research Question 7

The seventh research question associated with this study asked,

Is there a relationship between program/major and successful program completion?

This research question was addressed using the phi coefficient statistic because the dependent variable (program/major) and independent variable (successful program completion) were dichotomous. Findings indicate a non-significant relationship ($\phi = 0$) between program/major and successful program completion. According to the data, 96% of both AA and CSC students completed their programs. Findings from this analysis were in conflict with those for Research Question #3, which found that most students did not complete their program. This is due to an anomaly of the data. Students with a program designation (either AA or CSC) constituted only a small proportion of the total sample, and most students who failed to complete a program did not have a program designation. Therefore this finding should be considered with caution.

Summary

Summary of Findings Related to Research Question 1

Is there a relationship between program completion and use of academic accommodations?

- 1a.** Using the phi coefficient statistic, there was no statistically significant relationship found between successful program completion and use of academic accommodations for community college students with disabilities.
- 1b.** In terms of the relationship between successful program completion and frequency of use of academic accommodations, there was a mildly significant relationship between successful program completion and how frequent a student used academic accommodations. Frequent users and students who never used academic accommodations tended to successfully complete their programs at the same rate.

Summary of Findings Related to Research Question 2

Is there a relationship between student disability classification and use of academic accommodations?

- 2a.** There was a moderately significant relationship between student disability classification and use of academic accommodations. Students with medical and physical disabilities were less likely to use academic accommodations than those with other disabilities. Students with multiple and psychological disabilities were more likely to use academic accommodations than those with other disabilities.

- 2b.** There was a moderately significant relationship between student disability classification and frequency of use of academic accommodations. Students with medical and physical disabilities were more likely to never access academic accommodations and less likely to use academic accommodations frequently.

Summary of Findings Related to Research Question 3

Is there a relationship between student disability classification and program completion?

- 3.** Using the chi square statistical analysis, there was no significant relationship found between student disability classification and program completion. Students with disabilities, across disability classifications, were less likely to successfully complete their programs.

Summary of Findings Related to Research Question 4

Is there a relationship between academic campus setting and use of academic accommodations?

- 4a.** A significant relationship exists between academic campus setting and use of academic accommodations. Students with disabilities enrolled at the suburban campus were more likely to access accommodations than students with disabilities enrolled at the urban downtown campus.
- 4b.** Using the chi square statistical analysis, a strong significant relationship was found between academic campus setting and frequency of use of academic accommodations. Students with disabilities at the suburban campus were more

likely to access academic accommodations frequently than students with disabilities at the urban downtown campus.

Summary of Findings Related to Research Question 5

Is there a relationship between academic campus setting and program completion?

- 5.** Findings indicate a significant relationship between academic campus setting and successful program completion. Students with disabilities enrolled at the urban downtown campus were significantly less likely to successfully complete their program than students with disabilities enrolled at the suburban campus.

Summary of Findings Related to Research Question 6

Is there a relationship between program/major and use of academic accommodations?

- 6a.** Using the phi coefficient statistical analysis, there was a non-significant relationship between program/major and use of academic accommodations.
- 6b.** Based on the results of the chi-square statistical analysis, program/major was not significantly related to how frequent a student used academic accommodations. Students with disabilities enrolled in AA programs were just as likely to frequently use academic accommodations as students with disabilities enrolled in CSC programs.⁷

Summary of Findings Related to Research Question 7

Is there a relationship between program/major and successful program completion?

7. Findings indicate a non-significant relationship between program/major and successful program completion. According to the data, 96% of both AA and CSC students completed their programs.

CHAPTER 5

DISCUSSION

Introduction

The current study was designed to investigate the relationship between the use of academic accommodations and successful program completion of students with disabilities enrolled in community colleges. The main purpose for considering post secondary outcomes for students with disabilities was the increasing evidence that suggests that many students with disabilities who enroll in postsecondary institutions have difficulty remaining enrolled and actually completing their degree requirements (Tagayuna, et al, 2005; Mull, Sitlington, & Alper, 2001; Murray, 2000; Collins & Mowbray, 2005; Stodden & Dowrick, 2000). At the secondary level, accommodations provided to students with disabilities can make a difference in their academic outcomes and progress, this research study investigated whether the use of accommodations is related to program completion and if the use of accommodations is different based on a student's disability, program major, and/or academic campus.. For the purpose of this study, frequency of use was tracked by semester until the student graduated or discontinued attending classes. The participating community college's Office of Student Accommodations and Office of Institutional Effectiveness provided the secondary data examined in this study.

In addition to the use of academic accommodations, factors influencing successful program completion, such as disability classification, academic campus setting, program major and frequency of use of academic accommodations were explored in this study. Chapter Five presents a final summary of the research study. The information in this chapter is organized into five sections: (a) limitations and delimitations of the study, (b) summary of key findings, (c) implications for practice and future research, and (d) conclusion.

Key Findings of the Study

Both users and non-users of academic accommodations were successful in completing their programs. Although the frequency count of use of academic accommodations among students with disabilities revealed a mildly significant relationship, frequent users and students who never used academic accommodations tended to successfully complete their programs at the same rate. This is interesting when considering that the provision of academic accommodations, on post-secondary campuses, are often cited as a method of leveling the playing field for students with disabilities (Stretch and Osborne, 2005).

This finding (that the use of academic accommodations is not related to program completion) is consistent with previous findings that did not demonstrate that academic accommodations are conclusively linked to improved academic outcomes at the postsecondary level (Alster, 1997; Hall, 1984; and Lee et. al., 2008). However, they contradict findings of previous studies that indicate post-secondary students who used academic accommodations scored significantly higher on assessments than non-users (Weaver, 2000). Follow up studies on the post secondary education completion rates of students with disabilities should be done to examine these findings in relation to student race, gender, and type of academic accommodation used. As Shaw (2009) indicated, there could be many reasons for these inconclusive findings. First, faculty who teach in postsecondary settings might be using teaching and assessment techniques for all that could be considered accommodations at the secondary level. For instance, assessments might be take-home assignments or projects rather than in-class timed tests so the need to have additional time for tests (a frequent accommodation in secondary school) might not be necessary. The use of universal design for learning for instructional delivery might include

the use of multi-media and electronic notes, so the need for accommodations to access instructional materials might also not be necessary. Lastly, students might not need the same level of accommodations that they were provided in the secondary classroom. These possible reasons should be the focus of additional research studies with additional information included in the data collected and analyzed.

In addition to findings related academic accommodations and program completion, the results of this study suggests that students with medical and physical disabilities are less likely to access accommodations than those with other disabilities, more likely to never access academic accommodations and less likely to use accommodations frequently. Also, this study showed that students with disabilities at the suburban campus were more likely to use and access accommodations frequently than students with disabilities at the urban downtown campus, and students with disabilities at the urban downtown campus are more likely to never use academic accommodations. Furthermore, this study found that there was no significant relationship between the use of academic accommodations and program/major or a significant relationship between frequency of use and program/major. Students with disabilities enrolled in AA programs were just as likely to use and access accommodations frequently as students with disabilities enrolled in CSC programs. Why would one group of students access accommodations more than another group? There could be multiple reasons for this including student ability to advocate for accommodations they need. Students in suburban settings might be better prepared to advocate for their needs. Students with medical and/or physical disabilities might not need accommodations related to their disability that students with learning disabilities or sensory impairments might need. Accommodations that could support the academic success of students with physical and/or medical disabilities might obtain those from sources other than the DSS

office at their community college. They might need durable medical equipment that could be obtained through insurance coverage and/or rehabilitation services.

The results of this study showed that there was no significant relationship found between disability classification and program completion or a significant relationship between program/major and successful program completion. It should be noted that students with disabilities, across all of this studies disability classifications, did not successfully complete their academic programs of study at a higher rate. This finding is consistent with increasing evidence that suggests that students with disabilities who enroll in postsecondary institutions have difficulty remaining enrolled and actually completing their degree requirements (Tagayuna, et al, 2005; Mull, Sitlington, & Alper, 2001; Murray, 2000; Collins & Mowbray, 2005).

Furthermore, this study found that students with medical disabilities were less likely to successfully complete their program than students with other disabilities. As mentioned in the preceding section of this chapter, student with medical disabilities were also less likely to access accommodations than those with other disabilities, more likely to never access academic accommodations and less likely to use accommodations frequently. Findings of this study also indicate a significant relationship between academic campus setting and successful program completion. Students with disabilities enrolled at the urban downtown campus were significantly less likely to successfully complete their program than students with disabilities enrolled at the suburban campus. This finding is consistent with this studies data, which indicates that students with disabilities enrolled at the urban downtown campus were more likely to never use or access accommodations frequently. Of course, there can be other reasons than use of necessary accommodations that could impact program completion including financial resources,

family/personal issues, as well as program fit. These factors should also be taken into consideration in future research studies.

Limitations

Demographic Data

The study was based entirely on secondary data provided by the participating community college campuses. Although several important key findings were uncovered from the data set, the absence of key demographic and programmatic variables such as student race, sex, types of accommodations, use of universal design for learning in instructional delivery and assessment and reasons for a failure to use accommodations as well as complete one's program of study make it difficult to completely understand the implications of these findings. Future studies need to insure that these variables are included in their examinations. Also, it should be noted that the secondary data used in this study represented students with disabilities enrolled in a single community college with only two sites, therefore, the findings may not generalize to other community colleges and postsecondary education institutions.

Missing Data

Data examined specifically for addressing research question #7 revealed an anomaly of the data. The findings of this research question were in conflict with those of Research Question #3, which found that most students did not complete their program. Students with a program designation (either AA or CSC) constituted only a small proportion of the total sample, and most students who failed to complete a program did not have a program designation. Therefore this finding should be considered with caution. Future research in this area should insure that the data

contains program/major information on all of its participants, including those who did not successfully complete their program.

Implications

The current study set out to explore how the use of academic accommodations is related to successful program completion, disability classification, program/major and academic campus setting of students with disabilities enrolled in community colleges. The findings of this study have been examined and the implications for practice and future research uncovered.

Research

Both users and non-users of academic accommodations were successful in completing their programs. Frequent users and students who never used academic accommodations successfully completed their programs at the same rate. These findings should lead researchers to investigate if instructors at community colleges incorporate different forms of academic accommodations into their classrooms without formally being directed to do by the office of Disability Support Services. Further investigation into the reason for this action should also be considered. For example, a large segment of students who enroll in community colleges fail to self-report their disabilities and therefore do not receive the services provided by the office of Disability Support Services. However, many post secondary faculty members recognize the need to include universal design for learning methods in their classrooms and therefore provide different academic accommodations for all. It has become a common practice for faculty members to offer multiple adaptations of assessments and to allow students to take extra time

during examination periods. In addition, further research should address the ability of post secondary faculty members to recognize disabilities in their classrooms.

The research design of a study affects the confidence that one can have in its findings (Cook, Tankersley & Landrum, 2009). Different types of research designs address different research questions, and researchers should use them accordingly. The current study employed a causal-comparative research design to determine whether the use of academic accommodations affects the post secondary completion rates of students with disabilities attending community colleges. Causal-comparative research designs are commonly employed in the evaluation of educational programs when random assignment is not possible or practical (Gersten, 2005; Gribbons, 1997; Kerlinger, 1973; Lehman & Mehrens, 1979; Lenell & Boissoneau, 1996). Since this study was based on secondary quantitative data, the employment of this particular research methodology is considered most appropriate and should be used as a template for future multiple campus and/or demographic data research on this subject.

Since Community Colleges operate on an open enrollment policy and recognize that many entering students may require developmental remedial education in reading, math, writing, and vocabulary, they should insure that universal design for instruction tools and alternative assessment formats are readily available in the classroom and testing centers. All instructors should be educated on the usefulness of academic accommodations and trained to properly and sensitively provide accommodations and recognize the signs of a disability in students that may be having difficulty in the classroom. In order for community colleges to effectively educate such a diverse population of learners, high quality research should be conducted in the following areas: (a) the perception of students with disabilities and academic accommodations held by community college faculty members, (b) what specific community college programs/majors are

students with disabilities most successful in, (c) what community college course(s) require the most consistent use of academic accommodations, and (d) the barriers to successfully completing postsecondary education programs for students with disabilities at urban community colleges.

Practice

The use of post secondary academic accommodations was endorsed as an exemplary practice in 1997 by the National Mental Health Association's Partners in Care Program. Similar to the tendency of special educators to implement teaching practices into their classrooms that have never been shown to have any positive effect on student outcomes (Kauffman, 1996; Cook & Schirme, 2003; Cook, Tankersley & Landrum, 2009), community college Disability Support Service administrators insure that academic accommodations are provided without any research based evidence that this practice is effective. While many have assumed that students with disabilities will require some form of academic modification to be successful in post secondary environments, the findings of this study indicate that further research must be conducted to fully understand the impact of providing academic accommodations to community college students with disabilities. To this point, no researched based evidence has surfaced to show which accommodations are most effective, let alone, if students who use them successfully complete their programs.

A large part of the problem, as illustrated in the literature, is that many Disability Support Service offices do not collect retention statistics for students with disabilities (McCleary-Jones, 2007). This would be a good method for tracking the progress of students with disabilities, and serve as an assessment measure of the effectiveness of academic accommodations that are provided to these students. The present study was based on secondary data, however, because the participating community college did not collect retention data for this population prior to the

study, the data did not include important information such as gender, race or academic accommodation used. In order for researchers to arrive at accurate inferences concerning the effectiveness of academic accommodations, Disability Support Service administrators must make it a practice to collect this type of data continuously.

Conclusion

Based on the number of federal mandates and policies (ADA, 1990; ADAA, 2008, IDEA, 2004 Higher Education Opportunity Act, 2008; Health Care and Education Reconciliation Act, 2010) in the area of educational reform for students with disabilities, it is evident that postsecondary education has been identified as an important transition outcome for this population. Postsecondary education reform has intensified, in part, due to an increase in the number of students with disabilities who enroll in postsecondary institutions, but do not successfully complete their programs. This is troubling since positive postsecondary outcomes have been recognized as a vital part of preparing for a career (Stodden & Dowrick, 2000), and is closely related to overall lifetime earnings and economic self-sufficiency (Henderson, 1999; Kaye, 1998). Within the literature it is suggested that community colleges serve the largest segment of intellectual and or physically disabled students (Bigaj, 1995; Barnett, 1996; McCleary –Jones, 2007; Collins & Mowbray, 2005; Mull, et al., 2001; and Norton, 1997), however, research to examine the program completion rates of this population are lacking and warranted. In addition, research attention must be paid to the impact of the use of accommodations on the success of students with disabilities in postsecondary educational settings. The results of this study indicate that they may not have the desired effect of increasing program completion.

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