

ABSTRACT

Title of Document: LEADERSHIP SELF EFFICACY FOR
COLLEGE STUDENTS WITH A LEARNING
DISABILITY

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This thesis explored the pre-college and college factors that contribute to the outcome of leadership efficacy for college students with a learning disability, an area with little prior research. Data from 717 undergraduate students who identified a learning disability on the Multi-Institutional Study of Leadership were used for this study. Five hypotheses were tested using the Input-Environment-Outcome model as an organizing framework and multiple regression as the statistical method.

The study's model explained 47.2% of the observed variance in leadership efficacy with both campus climate and the pre-test for leadership efficacy serving as positive predictors. Negative predictors of the model included students who were Asian/Asian American as well as students who were employed off campus. Several other independent variables had moderate predictive ability, and seven out of eleven blocks in the model explained a significant proportion of the variance. This study's findings offer suggestions for practitioners and researchers.

LEADERSHIP SELF EFFICACY FOR COLLEGE STUDENTS WITH A
LEARNING DISABILITY

By

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DEDICATION

I want to simply dedicate my thesis to my parents, Tim and Bernadette Fincher. Without their unending support and encouragement, I never would have made it to this point in my academic career. They have always given me the freedom to find my passions in life, and I am forever grateful for their love and wisdom.

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CHAPTER 1: INTRODUCTION

Although various definitions of learning disabilities exist in current scholarship and literature, one of the most commonly cited definitions was developed at the 1990 National Joint Committee on Learning Disability (NJCLD) (Heiman & Kariv, 2004; Mercer, Jordan, Allsopp, & Mercer, 1996; Reiff, Gerber, & Ginsberg, 1993; Swanson, 2001; Troiano, 2003). NJCLD (1991) defines learning disabilities as “a generic term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities” (p. 3). In the next few years, the NJCLD (1994) further clarified this definition to exclude other problems or disorders that are frequently grouped within the term learning disabilities.

Problems in self-regulatory behaviors, social perception, and social interaction may exist with learning disabilities but do not by themselves constitute a learning disability. Even though a learning disability may occur concomitantly with other handicapping conditions (e.g., sensory impairment, mental retardation, social and emotional disturbance) or environmental influences (e.g., cultural differences, insufficient/inappropriate instruction, psychogenic factors), it is not the result of those conditions or influences. (p. 66)

This comprehensive definition sets boundaries on what is and is not included in the term learning disability; however, higher education’s practitioners and researchers often attribute other disabilities, disorders, problems or cultural differences to learning disabilities (Skiba, Poloni-Staudinger, Gallini, Simmons, & Feggins-Azziz, 2006; Warner, Dede, Garan, & Conway, 2002).

Researchers indicate that between 5 to 15% of American adults have a learning disability (Vogel, 1998), and many do not attain the same level of education as adults without a learning disability. Within ten years after high school, only 2.4% of students with learning disabilities graduate from a four-year institution while 45.5% of students without a learning disability obtain a four-year degree (Murray, Goldstein, Nourse, & Edgar, 2000). Other researchers have highlighted this significant disparity between graduation rates of college students with learning disabilities and their peers without a learning disability (Heiman & Precel, 2003; Hughes & Osgood Smith, 1990; Wells, Sandefur, & Hogan, 2003). While data clearly show that college students with learning disabilities graduate at a significantly lower rate than other college students, current research does not provide a clear and complete understanding of the factors that contribute to this difference (Siegel, 1999).

Institutions of higher education have seen a significant increase in the number of students with disabilities arriving on campus; since 1978 when less than 3% of students reported some type of disability, colleges and universities now enroll between 6 to 9% of individuals who self-report some form of a disability (Henderson, 1999, 2001; National Center for Education Statistics, 2000, 2006). This rapid growth has frequently been attributed to the passage of the Americans with Disabilities Act (ADA) in 1990 (Madaus, 2005; Trainor, 2007). Within the population of students with a disability, 40% self-reported some type of learning disability, which is the fastest growing group with a disability and has rapidly increased from 16% since 1988 (Henderson, 2001).

As a result of these rapid changes, researchers and practitioners have worked to respond to the diverse, changing needs of this group (Blake & Rust, 2002; Heilman &

Precel, 2003; Janiga & Costenbader, 2002; Wells, Sandefur, & Hogan, 2003). However, this reality has left the literature related to students with a learning disability somewhat disconnected and sparse in certain areas. “It is true that if one examines all the books and journal articles written about learning disabilities, the state of the field seems chaotic” (Siegel, 1999, p. 305). Particularly for this research, there is currently no significant base of literature that explores the development of this population’s self confidence and confidence in their ability to understand and practice leadership.

To understand how individuals develop personal confidence in their leadership abilities, this study will use the construct of self-efficacy. Self-efficacy, as a construct, was introduced by Albert Bandura (1977) as a dimension of his Social Learning Theory. Later, Bandura (1982) expanded the construct to include individuals’ confidence, personal expectations and outcome expectations. Bandura (1995) explains self-efficacy as “beliefs in one’s capabilities to organize and execute the courses of action required to manage prospective situations” (p.2). Thus from this definition and for the purposes of this study, leadership self-efficacy is the belief in one’s ability to engage in the practice of leadership by organizing and executing the needed courses of action. For college students with learning disabilities, leadership self-efficacy is an area that has not been critically examined in any currently published research.

Related literature explores academic self-efficacy for college students with a learning disability (Baum & Owen, 1988; Green-Black, 1988; Lackaye, Margalit, Ziv, & Ziman, 2006; Reis, Neu, & McGuire, 1997). “Usually the LD [learning disabled] student has average to above average intelligence, but receives, integrates, or expresses information differently from most non-disabled individuals” (Green-Black, p. 2).

Newman and Sternberg's (2004) edited book also explores factors that contribute to the development of academic self-efficacy for this unique population. Some factors include level of an individual's motivation, goals, values, academic interest, and self-regulation skills (Newman & Sternberg). Due to these individualized studies of academic self-efficacy for college students with learning disabilities, the researchers were able to identify key factors that were significant and unique to this population. This study intends to uncover the factors that account for leadership self-efficacy development for students with learning disabilities similar to the researchers who have explained what factors contribute to academic self-efficacy development for the population of college students with a learning disability.

Purpose of Study

With the limited literature that exists regarding leadership self-efficacy and the development of college students with learning disabilities, or any disabilities for that matter, it is difficult to understand how college students with learning disabilities develop their leadership self-efficacy. Leadership educators should not assume that the same developmental strategies are effective for college students with learning disabilities in the same way as the general college student population. Researchers have shown significant differences in other aspects of efficacy during college (i.e., academic efficacy), and this unique population of college students could potentially show significant differences when examining the construct of leadership self-efficacy (Lackaye, Margalit, Ziv, & Ziman, 2006).

Much of the literature that exists for college students with a learning disability operates from a deficit perspective (Gregg, Scott, McPeck, & Ferri, 1999; Hall, Spruill, &

Webster, 2002; Lackaye, Margalit, Ziv, & Zinman, 2006; NJCLD, 1990). Additionally, a majority of the studies on this population are comparison studies of peers without learning disabilities (Blake & Rust, 2002; Giovingo, Proctor, & Prevatt, 2005; Wells, Sandefur, & Hogan, 2003). Inherently, such research designs disadvantage college students with a learning disability by exacerbating the differences between their peers rather than focusing on the specific needs and development of college students with a learning disability.

In order to avoid a deficit approach, no comparison samples will be used in this study. Furthermore, this study will not attempt to measure the construct of leadership self-efficacy from a negative perspective (i.e., Why students with a learning disability have lower leadership self-efficacy). This research will focus on the unique factors that predict development of leadership self-efficacy for this population. Therefore, the purpose of this study is to investigate what pre-college and college experiences contribute to the development of leadership self-efficacy for college students with learning disabilities.

Theoretical Framework

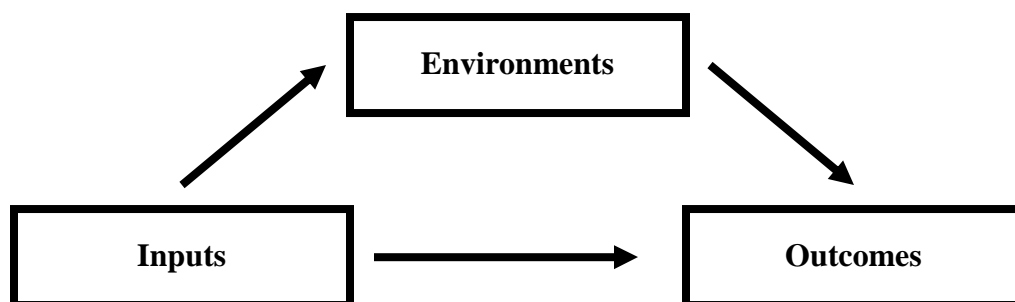
“Although it is clear that youth with LD [learning disabilities] attend colleges and universities at lower rates than youth without LD, little is known about the factors that influence the performance of youth with LD during their college experiences” (Murray & Wren, 2003, p. 407). Since this study focuses on the pre-college and college experiences that affect leadership self-efficacy development, it is important to isolate those college experiences and control for other factors that may alter this study’s results. To accomplish this level of control, A.W. Astin’s (1991) inputs-environments-outcomes (I-

E-O) college impact model establishes an effective structure to isolate and examine the factors that shape students' development of leadership self-efficacy during their college experiences.

Inputs-Environments-Outcomes Model

Astin's (1991) Inputs-Environments-Outcomes (I-E-O) model follows the natural progression of a student through the college experience. Before entering college, students have been exposed to a wide array of opportunities and experiences that can create differences when compared to their peers. These pre-college differences, inputs according to this model, can have a significant impact on how a student engages with the college environment and what results from that experience. The environment consists of all the components that comprise the college experience. "Environmental variables might also be referred to as treatments, means, or educational experiences, practices, programs, or interventions" (Astin, 1993, p. 18). Finally, the outcome is the change that educators, practitioners, or researchers are hoping to make or measure as a result of a student's involvement during their college experience. Refer to Figure 1.1 for the model.

Figure 1.1. A.W. Astin's I-E-O College Impact Model.



Since inputs are related to both the environmental and outcome variables, they can also indirectly influence how the environment influences the outcome. For example, the gender of a student with a learning disability would be an input into this model. Due to their gender, students may experience the college environment differently which, in turn, results in differential outcomes. This study will use Astin's I-E-O model as a way to organize the review of literature (Chapter Two) and the independent and dependent variables for statistical analysis (Chapter Three). The outcome that the researcher intends to measure, or the dependent variable, is the change in leadership self-efficacy. Due to the structure of this study, the influence that the inputs have on the environment will not be assessed; only the influence that the inputs and environment have on the outcome will be measured.

Self-Organization Theory

Due to all the intricacies of diagnosing learning disabilities and the specificity of certain types of learning disabilities, this study will focus on a macro-level examination of learning disabilities. Self-organization theory provides a useful frame for understanding the general characteristics of the entire population of individuals with a learning disability (Lewis & Granic, 2000; Zera & Lucian, 2001). "A self-organizing systems perspective suggests viewing disabilities from a macro rather than micro level...examining LD from a self-organizing systems paradigm offers a more complete and comprehensive explanation of this disability category by acknowledging the holistic and dynamic nature of brain organization and adaptation" (Zera & Lucian, p. 108). The researchers go further and explained that:

Particularly, this perspective subscribes to the notion that the systems of the brain are constantly reorganizing and that, since LDs are so complex, it is impossible for them to be narrowly categorized or determined as being specific. Due to the principle of self-organization, multiple processing disorders may arise that are not limited to the disorders typically associated with an identified, supposedly specific learning disability. (p. 108)

For the purposes of this study, this systems approach allows the broadest, most flexible means to identify a learning disability. Since the design of this study relies on students to self-report a learning disability and provides no additional subcategories of learning disability, it also operates from a macro-level perspective. Since this approach does not disaggregate various types of learning disabilities, it limits the ability to apply the results to specific types of learning disabilities.

Leadership Development of College Students

In the field of leadership studies, various models and theories of leadership exist. However, there are very few leadership models or theories that are particularly constructed for college students (Komives, Lucas, & McMahon, 1998; Komives, Owen, Longerbeam, Mainella, & Osteen, 2005; Higher Education Research Institute [HERI], 1996). The relational leadership model (RLM) (Komives et al., 1998), the leadership identity development theory (LID) (Komives et al., 2005), and the social change model of leadership development (SCM) (HERI) are all commonly used to understand how college students develop themselves as leaders and understand the concept of leadership. Each of these models was developed for the entire population of college students, and due to their generality, each may not entirely explain how college students with a learning disability

understand leadership and develop their sense of leadership self-efficacy. In Chapter Two, components of these three models and theories will be further examined to provide a more in-depth understanding of how college students view leadership and develop as leaders.

Definition of Leadership

Like leadership theories and models, numerous definitions of leadership exist. Since the social change model of leadership development is widely used with college students (Dugan, 2006b; Kezar, Carducci, & Contreras-McGavin, 2006; Moriarty & Kezar, 2000), this study will use the current definition that the creators of the social change model of leadership development have created. “The approach to leadership is a purposeful, collaborative, values-based process that results in positive change” (Cilente, in press). This approach to understanding leadership as a values-based process has become more prevalent over the last decade. “The social change model of leadership development and seven C’s of social change have played a prominent role in shaping the curricula and formats of undergraduate leadership education initiatives in colleges and universities throughout the country” (Kezar et al., p. 142). This definition is intended to be inclusive of all students at all stages of their leadership development. An inclusive definition of leadership is important when looking at an underrepresented population of students, like those with learning disabilities who may generally feel inferior to their peers (Bender & Wall, 1994; Blake & Rust, 2002). This study will examine whether the definition and measures used to assess leadership efficacy are representative of the experiences and development of college students with a learning disability.

Multi-Institutional Study of Leadership

Researchers at the University of Maryland - College Park collected data during the spring 2006 from 56,584 students at 52 different institutions across the United States. The Multi-Institutional Study of Leadership (MSL) is the largest current national dataset specifically examining leadership development and college student leadership outcomes. Using the RLM, LID, and SCM as a foundation for the MSL instrument, the research team constructed a 37-question survey that contains a modified version of Tyree's (1998) Socially Responsible Leadership Scale (SLRS) as a measure of the SCM as well as other scales for leadership identity development, appreciation of diversity, cognitive development, and leadership efficacy. More detail on this study is presented in Chapter 3.

Summary of Methodology

This study specifically used the leadership efficacy scale within the MSL instrument to better understand efficacy development for students with learning disabilities. Leadership efficacy was measured using a quasi-experimental pretest and posttest design in order to observe any self-perceived changes in efficacy due to pre-college and college experiences and involvement. Of the 56,584 students who submitted the survey, 5,737 students self-identified a disability and 815 students self-reported a learning disability. This study used all 815 students who reported a learning disability as the research sample.

Hierarchical multiple regression analysis was the statistical method used to determine which factors within the environment contributed to the change in variance of the outcome measure. Factors were chosen and tested based on support from the literature that exists regarding college student leadership development and literature for students

with learning disabilities. Since there is little overlap between these two distinct bases of literature, the researcher included all possible factors present in the literature to see which accounted for a significant amount of the explained variance. Chapter Three offers a more in-depth explanation of this study's instrumentation and methodology.

Significance of Study

This study has several possible implications for both theory and practice within higher education. As educators and administrators work to distribute resources efficiently and develop programs and services that are inclusive of all college students, the results of this study offers clear suggestions on educational interventions that can positively affect the development of leadership self-efficacy for college students with learning disabilities. Since most institutions of higher education include the value of leadership within their mission and values statements (Boatman, 1999; Council for the Advancement of Standards in Higher Education [CAS], 1999), this research is especially relevant for institutions to understand how to develop *all* students as leaders during their time on campus.

Theoretical Implications

With little literature presently related to this topic, this study presents novel findings that can create new knowledge and provide direction for future research studies. Using the data from this study, researchers can begin to refine and better understand the ways that college students develop their sense of themselves as leaders. Since students with learning disabilities often exhibit lower feelings of self-esteem and self-confidence than their peers (Blake & Rust, 2002; Hall, Spruill, & Webster, 2002; Trainin &

Swanson, 2005), additional research can help educators understand concrete, systematic ways to develop a greater sense of leadership self-efficacy for this population.

Although this research is specific to learning disabilities, the study's methodology can be applied to other types of disability (e.g., physical, visual, and hearing disabilities), or other populations of students (e.g., first generation students, Latino students, and LGBT students), to gain more knowledge about how these populations of students develop their sense of leadership self-efficacy in a similar or different way. Generally, the results of this study can add depth and clarity to the literature for both students with disabilities and to the development of leadership self-efficacy.

Additionally, the findings of this study indicates factors of the college environment that have a significant or non-significant effect on college students with a learning disability with regard to leadership self-efficacy. For example, since the data showed that Carnegie type was not significant to the development of leadership self-efficacy, it suggests that additional research needs to be conducted to explain such a finding. If additional research supports the insignificance of this variable, it can help to challenge previous literature on leadership self-efficacy for the general student population (Johnson, 2000). On the other hand, this research, with support from other research, could uncover factors that are significant contributors to the development of leadership self-efficacy that have not been found to be significant to the general student population.

Practical Implications

The findings from this data also suggest several practical implications for leadership educators, counselors and other professionals working on college and university campuses. With a better understanding of how leadership self-efficacy is

developed for college students with learning disabilities, leadership educators can evaluate their current programs and services to ensure that they are responsive to the distinctive needs of these students. As the number of leadership programs across the country increases each year (Zimmerman-Oster & Burkhardt, 1999), it is important for leadership educators to intentionally build leadership programs that are inclusive of every student on campus.

Personal, academic, and career counselors can all benefit from the results of this study. As these various counselors individually work with students on their campuses, they can tailor their approaches and services to reflect the different needs of members of their diverse student body. As counselors work to help their clients develop more confidence in themselves and their abilities to manage situations (e.g., choosing a major, exploring career options, and adjusting to a new college environment), the results of this study can inform counselors on ways to focus their interventions to enhance leadership self-efficacy for clients who disclose a learning disability.

Lastly, the results of this study can be directly shared with college students who have a learning disability as a framework to explain factors that may be helpful in developing their confidence in themselves as leaders. Although it is not appropriate to simply generalize these research findings to each student with a learning disability, the conclusions still offer some new ideas for students to explore and see if it applies within their context. If shared with students who have struggled with a sense of confidence in their leadership abilities, the results of the multiple regression analysis could prove to be a useful way for students to explore how factors, that they may have never considered before, could be beneficial in developing a stronger sense of leadership self-efficacy.

Conclusion

This chapter provided an introduction to leadership self-efficacy for college students with learning disabilities and highlighted the purpose of the research: to investigate what pre-college and college experiences contribute to the development of leadership self-efficacy for college students with learning disabilities. Background information on Astin's I-E-O Model, self-organization theory, leadership development, and the Multi-Institutional Study of Leadership (MSL) were discussed. A brief summary of the study's methodology was introduced, and implications for theory and practice supported the importance of this study. The next chapter, Chapter Two, provides a comprehensive look at the relevant literature and research related to this study.

CHAPTER 2: REVIEW OF LITERATURE

This chapter offers a review of two distinct areas of literature, college students with learning disabilities and leadership self-efficacy. These two topics do not generally overlap or intersect with one another in the literature, but this population (college students with learning disabilities) and construct (leadership self-efficacy) will be examined for evidence indicating support, contradictions or gaps between previous studies and research. The contents of this chapter will be organized using Astin's (1991) college impact model (i.e., I-E-O model) to differentiate factors into three separate categories: inputs, environments and outcomes. First, general information regarding the current composition of college students with and without disabilities will be discussed. Second, literature exploring the unique development and needs of students with learning disabilities will be examined. Third, this chapter will explore the evolution of leadership and the development of the construct of self-efficacy. Finally, the chapter summary will synthesize the findings that may be relevant to the purpose of the study which is to examine what pre-college and college factors contribute to the development of leadership self efficacy for college students with a learning disability.

Astin's I-E-O Model

As it was presented in Chapter One, Astin's (1991) I-E-O college impact model serves as one way to understand how the college environment can affect student outcomes. According to this model, the change in student outcomes could be exaggerated if an analysis does not control for pre-college experiences and student characteristics, inputs in this model. Once the inputs of the model have been properly controlled for, the researcher can then explore which programs, services, interventions, people and policies

contribute to the observed variance in the intended outcome without the influence of the input variables (Astin, 1993).

As factors that may affect the outcome of leadership self-efficacy are introduced within this literature review, they will be entered into the table presented below, Table 2.1. This table will continue to expand throughout the literature review as additional factors are uncovered within the literature and considered to be relevant to this study. Factors will appear bold the first time they are entered into the table. Although the construct of leadership self-efficacy will not be discussed until the end of Chapter Two, it is entered into this model at the beginning of this chapter to provide the reader with the clear direction and focus of the study by reinforcing the dependent variable in this iterative table.

Table 2.1

I-E-O Model of Leadership Self-Efficacy

Input	Environment	Outcome
		Leadership Self-Efficacy

College Students with a Disability

The proportion of 18 to 24-year-olds who are enrolling in college has significantly grown within the last decade; in 2005, 49.3% of high-school graduates were enrolled in college which has increased from 42.4% of the high-school graduates in 1995 (Chronicle of Higher Education Almanac, 2007, p. 14). With almost half of high school graduates now attending college, the system of American higher education has become a more

inclusive, accessible environment for students who may not have been considered in the college admissions process only a few decades ago (Trow, 1998; Trow, 2000). According to the U.S. National Center for Educational Statistics (NCES) (2006), 19,054,000 undergraduate students attended a two or four-year college or university. Of this number of students, roughly 2,156,000 students (11%) enrolled in undergraduate majors self-reported some form of disability (NCES, 2006). This number is significantly higher than other estimates of college students with a disability.

According to the Cooperative Institutional Research Program (CIRP) data, “about 6 percent of first-time, full-time freshman attending four-year institutions in fall 2000 self-reported a disability” (Henderson, 2001, p. 1), and this number has continued to increase over the last ten years (Henderson, 1992, 1995, 1999, 2001). “Of students surveyed at four-year institutions only, the proportion of freshman reporting disabilities averaged 6 to 8 percent between 1988 and 2000” (Henderson, 2001, p. 3). Students were asked the following question: Do you have a disability? If so, they were instructed to mark all the following disabilities that applied: none, hearing, speech, orthopedic, learning disability, health-related, partially sighted or blind, and other (Henderson). These disability categories, with slight variations, are commonly used in other research to classify types of disability (Florian, et al., 2006; Hall & Belch, 2000; Hutchinson, 1995; Scott, McGuire, & Foley, 2003; U.S. Department of Education, 2007).

The range of disability types and the challenges of properly diagnosing disabilities can leave individuals undiagnosed or misdiagnosed (Baca-Garcia, et al., 2007; Davidson & Meltzer-Brody, 1999; Gregg, Scott, McPeck, & Ferri, 1999). A few studies have explored the fact that students with a disability may not feel comfortable identifying

with that disability (Gregg et al., 1999; May, 2002; Shupe, 2000). Therefore, gaining an accurate percentage of college students with a disability can be a challenging undertaking.

According to the U. S. National Center for Education Statistics (2005) data, compared to their non-disabled peers, undergraduates with a disability are more likely to be over 30-years-old, White, part-time, living off-campus, and support dependents in their household. Additionally, Henderson's (2001) analysis of the CIRP data highlighted other characteristics. Students with a disability were more likely to be men, U.S. citizens, living with both parents, come from higher income families, and need additional time to complete degree requirements (Henderson).

Within psychology and sociology literature, researchers have frequently separated types of disabilities into the categories of visible and hidden (Bessell & Moss, 2007; Phemister & Crewe, 2007; Scambler, 2004). Visible disabilities (e.g., motor impairment, visual impairments, speech) are easily recognized as part of an individual's identity while hidden disabilities are those that are not seen by simply looking at an individual. Since students with hidden disabilities do not always share this piece of their identity with others, they are often viewed as less competent or capable by other students, faculty and staff (Hartman-Hall & Haaga, 2002; Janiga & Costenbader, 2002; Thompson, Bethea, & Turner, 1997). If others are unaware of a student's learning disability, they may judge a person's inability to do something (e.g., concentration for long periods of time) as laziness or unwillingness. Of the disabilities that could be considered hidden, learning disabilities have received a significant amount of attention and research over the last several decades (Konrad, Fowler, Walker, Test, & Wood, 2007).

College Students with a Learning Disability

As "the fastest growing category of reported disability among students," (Henderson, 2001, p. 5) college students with a learning disability account for roughly 40% of all college students with a disability. "In 2000, 45 percent of those reporting a learning disability were women and 19 percent were students of color" (p. 21). Henderson's statistical profile highlights several other unique characteristics of students with a learning disability:

Compared to other freshman with disabilities, students with learning disabilities were the most likely to:

- Be from White/Caucasian families (81 percent versus 72 percent).
- Be 19 or older (45 percent versus 37 percent).
- Be from families whose income exceeded \$100,000 (42 percent versus 30 percent).
- Have parents who were college graduates (65 percent versus 55 percent).
- Have earned "C" or "D" averages in high school (17 percent versus 12 percent).
- Expect that they will need special tutoring or remedial work in English (28 percent versus 19 percent), reading (18 percent versus 11 percent), and mathematics (41 percent versus 36 percent).
- Consider majoring in arts and sciences (20 percent versus 15 percent)
(Note: They were least likely to be interested in professional fields (4 percent versus 10 percent).
- Rank themselves lowest on math ability (31 percent versus 38 percent),

intellectual self-confidence (51 percent versus 57 percent), academic ability (42 percent versus 57 percent), and writing ability (34 percent versus 42 percent).

(Henderson, pp. 21-22)

Additionally, students with a learning disability were also less likely to benefit from an enrollment incentive of financial assistance (23 percent versus 31 percent) (2001).

When talking about any category of disability, it is important to note that it does not represent a completely homogeneous group of people with an identical disorder.

The LD classification is defined as much by what it isn't as by what it is, and it is accompanied by a long list of exclusions, for example, learning problems due to generalized cognitive limitations, to social/cultural conditions, or to instructional inadequacies. The result is a broad band of learning problems gathered under the LD rubric, thus posing a challenge to homogeneity. (Keogh, 2005, p. 100)

Therefore, studies of individuals with learning disabilities are frequently limited by the inability to isolate the differences within the group without using a highly-detailed assessment instrument (Ross-Gordan, Plotts, Joesel, & Wells, 2003; Warner, Dede, Garvan, & Conway, 2002). Additionally, studies can be limited by the different definitions of learning disability that are present within the literature. Researchers have been challenged to identify one definition that encompasses this extremely heterogeneous population. In fact, most published research on students with a learning disability fails to identify the definition from which the research operates (Siegel & Smythe, 2005). This poses a challenge when trying to compare and contrast studies that could potentially define learning disability in a different way. Elkins (2007) explained that the loose

definition of learning disability has blurred the lines between academic difficulties and a learning disability. "The terminological distinction between LD and learning difficulties was often ignored, and the nuance of experiencing difficulties, rather than having disabilities, was lost on most people" (pp. 392-393).

Taking this a step further, critics of the term learning disability have argued whether the disability, or *problem*, truly lies within the individual or is it a product of the learning environment, or the environment determines or defines the disability (Dudley-Marling, 2004; Jones, 1996; McDermott & Varenne, 1999; Smith & Polloway, 1979). Learning disability as a social construction removes the *problem* from the person and focuses on the relationship of the person with his or her environment. "Certainly, the significant body of research that has been generated from this in-the-head perspective has benefited many students identified as having LD--students for whom school would otherwise have been intolerable" (Dudley-Marling, p.482). This approach to conceptualizing learning disabilities within the social context encourages educators to separate the disability from the individual and find ways to reshape the educational environment to accommodate the student's needs. Even though this is educationally ideal for the student, institutions of American higher education, and most institutions in our society, are not structured in a way that foster a socially-constructed view of learning disabilities (Levine & Nourse, 1998; Wells, Sandefur, & Hogan, 2003).

Prior to college, students' educational environments are governed by the Individuals with Disabilities Education Act (IDEA). "IDEA and its amendments provide funding mandates for the identification and provision of special education services to students with disabilities from birth to age 21. The goal of IDEA is to promote more

positive outcomes for students" (Janiga & Costenbader, 2002, p. 463). Upon entering college, students with a learning disability are now managed by the regulations of the Americans with Disabilities Act (ADA). ADA "guarantees only that individuals who are otherwise qualified for employment or educational programming (i.e., university enrollment) are not denied access simply because of their disability" (Janiga & Costenbader, p. 463). Even though federally-funded institutions are required to provide reasonable accommodations, ADA only requires institutions to provide the minimal amount of necessary support for college students. Thus, the regulations of ADA place full responsibility of the disability on the student. The range of services, as compared to high school, is more limited and students must meet more rigorous criteria to receive support services (Janiga & Costenbader).

A definition of learning disability that reflects both a social constructivist viewpoint and the reality of America's higher educational structure is not easily found within the literature, and since the two operate from drastically different paradigms, it does not seem likely that a socially constructed definition will be common in the literature for these students unless ADA laws are radically changed. Although variations of the definition of learning disability are cited in the literature, one definition seems to be more commonly used by scholars within the last fifteen years:

Learning disabilities is a generic term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities. These disorders are intrinsic to the individual and presumed to be due to the central nervous system dysfunction. Problems in self-regulatory behaviors, social

perception, and social interaction may exist with learning disabilities but do not by themselves constitute a learning disability. Even though a learning disability may occur concomitantly with other handicapping conditions (e.g., sensory impairment, mental retardation, social and emotional disturbance) or environmental influences (e.g., cultural differences, insufficient/inappropriate instruction, psychogenic factors), it is not the result of those conditions or influences. (National Joint Conference on Learning Disabilities, 1991, p. 3)

This definition takes into account the spectrum of differences that exist within the term learning disability, yet it situates the disorder solely within the individual context and suggests that environmental factors are separate from the disability. It is probably most common in the literature because it is easier for researchers to isolate and measure the environmental variables separate from the learning disability rather than try to measure a learning disability as an interwoven component of the environment.

Self-Organization Theory

With the variety of disorders and specific diagnoses that fall within the learning disability category, it is important to operate in a larger framework that offers a way to understand and explain the intricacies of learning disabilities. "Given that learning disabilities (LD) are an extremely complex construct with a vast and diverse literature base, attempts to develop unified theories regarding the underlying causes of LD and consistent, systematic classification practices have thus far been futile" (Zera & Lucian, 2001, p. 107). In different definitions, learning disabilities have been consistently defined as a form of neurological dysfunction (Gregg, Scott, McPeck, & Ferri, 1999; Hall, Spruill, & Webster, 2002; NJCLD, 1991). Since neurological processes are remarkably

complex and convoluted, it is virtually impossible to understand the entire set of brain pathways that contribute to a learning disability. However, researchers devote time trying to map out each pathway. "The neurological system to which LD is associated is extremely complex and understanding such complexity does not come about by breaking it into isolated, component pieces" (Zera & Lucian, p. 108).

For these reasons, self-organization theory appears to be a helpful way to holistically understand a learning disability. Self-organization theory, sometimes referred to as chaos theory or non-linear dynamical systems, "denotes a process by which a structure or pattern emerges in an open system without specifications from the outside environment" (Barton, 1994, p. 7). If this is applied to the construct of a learning disability, it aligns with the NJCLD definition of a learning disability. A pattern emerges (difficulty with listening, speaking, reading, writing, reasoning, or mathematical abilities) regardless of the outside environment. These patterns of difficulty could produce challenges in developing self-confidence and positive self-image (Barton). Self-organization is a macro-level view of a phenomenon that is capable of forming "stable yet flexible structures" (Barton, p. 8). This approach accounts for the ever-changing adjustments in neural pathways and non-linear brain functions "by acknowledging the holistic and dynamic nature of brain organization and adaptation" (Zera et al., 2001, p. 108). Therefore, dysfunctions are a product of a complex web of neural reactions that are not additive or predictable. Rather than spend enormous energy working to diagnose specific forms of a learning disability, self-organization theory would suggest that researchers look at more generalized patterns or structures of disability and avoid imposing linear diagnostic techniques on this non-linear phenomenon. For that reason,

the following sections will look at patterns in individual and environmental characteristics that may affect the development of leadership self efficacy for college students with learning disabilities.

Background Characteristics

This section will explore the literature regarding background characteristics of college students with a learning disability. These characteristics include previous educational experiences, gender, race/ethnicity, socioeconomic status, age, and multiple disabilities. Particular attention is given to factors that indicate a possible relationship, either directly or indirectly, to a student's leadership self-efficacy that is discussed at the end of this chapter.

Previous Educational Experiences

The transition from high school to college can be challenging for any recent graduate; however, students with learning disabilities are faced with additional obstacles and questions to consider (Trainor, 2007). After deciding to attend college, students must also decide whether to disclose a disability. While in high school, students with a learning disability may have an individualized education plan constructed by the appropriate staff members of the school. The students do not have to explain their needs to each teacher at the beginning of the year, because such information has already been communicated to the teacher via the institution. In college, the same students must first report the learning disability to the person or office responsible for coordinating the institution's support services. After choosing to disclose this information, students with a disability must then provide the appropriate documentation and request accommodations from each instructor at the beginning of each semester (Kato et al., 2006; Madaus, 2005). Students must

initiate this process and the information is not shared with all their professors.

In 2002, Janiga and Costenbader surveyed 74 college and university disability service coordinators in the state of New York to assess “the status of transition services for students with LD who pursue postsecondary education” (p. 462-463). The results of the survey indicated that college disability service providers “are most concerned with the inadequacy of students’ self-advocacy skills” (p. 467). The college coordinators suggest that high school transition counselors should focus more time on preparing students to develop increased independence (i.e., decision making, self-advocacy skills) since some sources of support will no longer be available after high school. “Students who are dependent on others may struggle when they enter college and are forced to take responsibility for their own educational services” (p. 467). Additionally, the researchers highlighted the need for early career and academic planning and better communication between high school transition counselors and college service providers. The majority of survey respondents expressed “a desire for improved communication between high school staff and service providers at the college level” (p. 468).

When looking further at students with a disability and within group comparisons, students with learning disabilities are less likely to pursue some type of postsecondary education when compared to students with mobility and sensory disabilities (Wells, Sandefur, & Hogan, 2003). “The effects of disability and type of disability greatly overshadow those of race and ethnicity, family structure, and number of siblings” (p. 826). Blake and Rust (2002) discuss a possible reason that students with a learning disability do not seek higher education as frequently: “When threatening social situations arise, persons with unseen disabilities may feel that their participation may reveal their

disability, and therefore they may be less likely to participate” (p. 218). In the context of attending college, students with a learning disability would have to frequently reveal their disability in order to receive the services they need to succeed. This disclosure happens as early as the first admissions application form and continues in each subsequent class. Table 2.2 includes pre-college self-advocacy, pre-college experiences and involvement and type of disability in the I-E-O Model of Leadership Self-Efficacy.

Table 2.2

I-E-O Model of Leadership Self-Efficacy

Input	Environment	Outcome
Pre-college self-advocacy		Leadership Self-Efficacy
Pre-college experiences and involvement		
Type of disability		

Gender

Of students who reported a disability on the Cooperative Institutional Research Program (CIRP) survey, a larger percentage of men (43.2%) self-identify a learning disability than women (37.4%) (Henderson, 2001). This gender disparity has been consistently recognized in other research on learning disabilities (Hampton & Mason, 2003; Oswald, Best, Coutinho, & Nagle, 2003; Reiff, Hatzes, Bramel, & Gibbon, 2001; Siegel & Smythe, 2005). Researchers indicate that males are more frequently referred by their teachers for testing before college which may contribute to the higher percentage of

men at college with a diagnosed learning disability (Shaywitz, Shaywitz, Fletcher, & Escobar, 1990). Similarly, Vogel (1990) summarizes the possible reasons for the underdiagnosis of females with a learning disability:

There are several possible explanations for the underidentification of females with learning disabilities. The first relates to a mismatch between the child's problems and the screening or referring agent's expectations as to the characteristics of the LD child. This mismatch is a consequence of the scarcity of research regarding the behavioral manifestations and clinical profiles of females with learning disabilities (i.e., resulting from an overgeneralization of research results on samples of males with learning disabilities). (p. 50)

Vogel further suggested that other reasons for the diagnostic imbalance may be attributed to more males having attention deficit disorders and that teachers favor referring males for diagnosis over females who exhibit the same symptoms. This could be due to secondary school environments that are mismatched to male needs or that behaviors required to succeed are less often displayed by males. This research suggested that more women enter college campuses undiagnosed with a learning disability and more college men are misdiagnosed with the same disability.

Other than differences in diagnosis, researchers have concluded that gender has had an impact on other components of a student's life with a learning disability. Regardless of a learning disability, women students demonstrated higher interpersonal skills according to Reiff and colleagues' study of 128 college students (2001). This study of men and women with and without learning disabilities yielded other gender differences. "Women students had higher GPAs than men...women students were also

older than men students" (p. 75). Since women, regardless of learning disability, also indicated higher levels of interpersonal skills and ability, the higher GPAs amongst women may correlate to their higher level of interpersonal skills (Reiff et al.); however, the researchers did not measure this possibility. One significant limitation of this study involved sample selection. "Both volunteers (mainly with LD) and non-volunteers (mainly without LD) participated, creating inherent bias problems. Students who did not volunteer for the study may present a different profile from those who did volunteer" (p. 76). This limitation is common in the literature since researchers often either work with campus disability offices or post flyers to gain access to this population of students while they may draw a random sample for students without a learning disability (Hartman-Hall & Haaga, 2002; Troiano, 2003; Warner, Dede, Garvan, & Conway, 2002).

Although several researchers have identified significant differences within their research according to gender, Levine and Edgar (1995) reported that none of the postschool outcomes in their study were significant except that women were more prone to single parenthood. "The data from this study imply that gender differences in long-term outcomes for youth with mild mental retardation, learning disabilities, and no disabilities (as measured by rates of engagement in employment, school, and independent residence) may be more mythical than real" (p. 299). These data were gathered from two cohorts who had graduated high school ten years prior to the study. In the first cohort, 172 students reported a learning disability and 117 students reported a learning disability in the second cohort. There was no reported overrepresentation of either gender. Since the research on gender produces different findings according to the type of study, it is important to continue to examine gender differences and further refine the research on

men and women with learning disabilities (Banks & Mona, 2007; Blackorby & Wagner, 1996).

Race and Ethnicity

Helms (1992) summarized twenty years of previous research regarding the impact of racial and ethnic influences on cognitive and intellectual ability and noted that "a difference in intellectual ability may instead be a difference in acculturation or the learning of White culture" (p.1084). Furthermore, she explains that testing instruments are typically developed using Eurocentric language and testing methods, and it is often concluded that minority racial groups show a developmental lag (Helms). Rather, the difference according to race or ethnicity should be critically examined to see if the observed variance is manifested in cultural variations and not developmental differences. With this in mind, the research regarding race and ethnicity's effect on learning disabilities should be approached cautiously.

Warner et al. (2002) developed their research as a result of the commonly reported disparity between White and African Americans with a learning disability. The research team questioned the effectiveness and accurateness of state-mandated diagnostic approaches, the simple-difference method and the regression-based method, and developed a study to compare these two approaches against one another and also against clinician-determined diagnosis. The three hypotheses were: (a) clinic-referred mean IQ scores for African Americans would be significantly lower than White individuals; (b) "the simple difference method would identify a significantly smaller proportion of African Americans...than a regression-based method" (p. 502); and (c) Whites would show no significant difference between the simple difference method and regression-

based method.

"On average, African Americans obtain IQ scores that are 1 SD lower than those of their European American peers" (Warner et al., 2002, p. 501). The simple difference method has been shown to be substantially limiting to African Americans because any scores below one standard deviation from the mean automatically dismiss a possible diagnosis of a learning disability. Therefore, the most common diagnostic method for learning disabilities fails to adequately assess a large portion of African Americans who possibly have a learning disability. In the study of 117 college students with and without learning disabilities, the simple difference only identified 36% of the African American sample as having a learning disability while the regression-based method indicated 54% with a learning disability. The regression-based method "controls for the regression of achievement scores to the mean IQ score" (p. 502) that is unlike the simple difference method. No significant diagnostic difference was observed when comparing the two methods for White students.

The final, most time intensive, approach of clinician-determined diagnosis showed significantly higher diagnostic rates for both comparison groups. The diagnosis of learning disabilities for African American students (76%) as well as White students (55%) when compared to the simple difference method.

There are at least two possible explanations for this difference. First, the clinicians had access to more data when making a diagnosis, including information for the student's history as well as the results of other neuropsychological tests. Second, the clinicians, fully aware of the IQ differences between African Americans and European Americans, may have placed less emphasis on IQ scores when evaluating

African Americans. (Warner et al., 2002, p. 505)

The results support the need to conduct comprehensive clinician-based evaluative methods rather than standardized assessments, especially for African American students. These findings indicate that a significant percentage of African American students on college campuses have a learning disability but have gone undiagnosed.

Although this study is limited to African Americans, similar results may be apparent when looking at other racial and ethnic minority groups. Unfortunately, no studies on other racial or ethnic groups could be found in the literature, but a larger, underlying factor of socioeconomic status (SES) may suggest the applicability of these results to other racial and ethnic minority groups. Since poverty is documented to be more likely in minority ethnic or racial groups, the findings for African Americans in this study may be common within other minority populations (Barrera, Caples, & Tein, 2001; Elmelech & Lu, 2004). The study by Warner and his colleagues (2002) did not collect SES data which limits the ability to see if a learning disability diagnosis is influenced by SES status.

Socioeconomic Status

One recent, large-scale study examines how low SES status influences the diagnosis of a learning disability. Researchers conducted a study in Florida that linked birth and school records to explore the differential diagnoses for children ages 12 to 14 (Blair & Scott, 2002). Through epidemiological statistics, Blair and Scott were able to link 159,129 birth and school records. From that, 14,717 individuals were diagnosed with a learning disability and were used for the study. To look at what factors contributed the rate of learning disability diagnosis, ratios were calculated by "dividing the rate of LD in

the group having the risk factor of interest by the rate of LD in the group in which the risk factor was not present" (p. 16). Four key findings from the study are: (a) "Analyses indicated that the rate of learning disability placement among children from low-SES backgrounds is greater than would be expected given the rate of placement among children not experiencing low SES" (p. 14); (b) "73% of all children with an LD placement in the sample were boys" (p. 17); (c) 39% of students with a learning disability had mothers who had fewer than 12 years of education; and (d) "Analyses indicated that 30% of LD placements among boys and 39% of LD placements among girls were attributable to what can be considered low-SES markers" (p. 19).

Limitations of Blair and Scott's study are common within the research on socioeconomic status; the most significant limitation is that SES is indirectly obtained through a combination of demographic measures and not from a singular SES variable (Entwisle & Astone, 1994; Kaufman, Cooper, & McGee, 1997). In this case, SES was defined using a combination of risk factors that have been shown to suggest low-SES status: low maternal education, unmarried mother, late care, late education and low birth weight. Another limitation noted by the researchers is that although they were able to attribute between 30-40% of LD placements to low-SES markers, similar studies for mental retardation and emotion disturbance have attributed 100% and 75% of the LD placements to low-SES markers, respectively. This moderate attribution of low-SES markers to learning disabilities provides a significant contribution to the literature that is not present in other current studies of learning disabilities. The only other significant study that was found for SES and learning disability was conducted 20 years ago (O'Connor & Spreen, 1988). Table 2.3 includes socio-economic status in the I-E-O

Model of Leadership Self-Efficacy, as well as gender and race/ethnicity from the preceding sections.

Table 2.3

I-E-O Model of Leadership Self-Efficacy

Input	Environment	Outcome
Pre-college self-advocacy		Leadership Self-Efficacy
Pre-college experiences and involvement		
Type of disability		
Gender		
Race / ethnicity		
Socio-economic status		

Age

There is no strong base of literature that explains how age influences the development of college students with learning disabilities, but there are a few recent articles that suggest assessing college students with learning disabilities according to their class standing and not their actual age.

More recently, with the advent of grade-based norms, an individual can also be compared to his or her grade-matched peers (e.g., all college sophomores in the standardization sample) regardless of age. This is particularly important when evaluating postsecondary students, as there tends to be greater variability in age

and grade status than is found among younger students. (Giovingo, Proctor, & Prevatt, 2005, p. 81)

Proctor and Prevatt (2003) tested four models of diagnosing disability and concluded that results significantly differ when using an age-based approach versus a grade-based approach.

The age that a student is diagnosed with a learning disability has also emerged as a significant component of the student's experience. In a grounded theory study of nine undergraduate students, Troiano (2003) identified "time of diagnosis" as a causal condition relating to the core category of "self-style" (p. 410). The interviews revealed that the earlier students learned of their learning disability, the more they were able to integrate it into their sense of self. If students were diagnosed before high school, they have had a significantly greater amount of time to understand their strengths and weaknesses in relation to their disability than students who were diagnosed during college. "Students who were diagnosed after graduating from high school were working hard to develop a sense of acceptance and understanding of their disability" (p. 411). This logical finding is not often assessed within published studies; most studies ask whether an individual has a learning disability and not how long he or she has had a learning disability. Such a question could provide a richer source of data to understand how the development of college students with learning disabilities is affected by the amount of time since their diagnosis.

Multiple Disabilities

College students with a learning disability are most likely to indicate an additional disability when compared to their peers with other types of disability (Henderson, 2001).

The CIRP data, which allows students to check all the disabilities that apply, revealed that college students with a learning disability most frequently identify multiple disabilities. Using the 2000 CIRP data, Henderson reported that students with a learning disability mark a higher percentage of combinations of all disability categories, with the exception of the combination of speech and hearing disabilities as well as the combination of orthopedic and health-related disabilities. Therefore, students with a learning disability are more likely to have a hearing, sight or other form of disability, and they are the second most likely to indicate a speech disability and third most likely to indicate an orthopedic disability. Students with multiple disabilities can make it difficult for researchers to understand the effects of one specific disability and not the combination of disabilities. For that reason, researchers should control for other disabilities when studying how learning disabilities affect individuals with multiple disabilities. See Table 2.4 for the addition of other disabilities and age.

Campus Environment

This section will examine the components of the college environment that could contribute to the development of leadership self-efficacy for college students with a learning disability. As previously mentioned, the literature for leadership development and self-efficacy rarely intersect with the literature on learning disabilities; therefore, this section will focus more generally on all students and suggest connections with the experiences of college students with a learning disability. Within this section, sources of support, campus environment, co-curricular involvement including community service, employment and organizational involvement, and academic environment are explored.

Table 2.4

I-E-O Model of Leadership Self-Efficacy

Input	Environment	Outcome
Pre-college self-advocacy		Leadership Self-Efficacy
Pre-college experiences and involvement		
Type of disability		
Gender		
Race / ethnicity		
Socio-economic status		
Age		
Other Disabilities		

Sources of Support

Researchers at American University specifically looked at help-seeking behaviors for college students with learning disabilities (Hartman-Hall & Haaga, 2002). Hartman-Hall and Haaga designed a study of 86 students from American University and the University of Maryland-College Park to "evaluate individual differences and situational manipulations derived from the general help-seeking literature as possible predictors of utilization of academic support services" (p. 263). The study was ultimately "designed to increase understanding of how college students with LDs decide whether or not to seek assistance" (p. 264).

Initial interviews were conducted to measure the current and previous effects that

a students' learning disability had on them; several quantitative tests were conducted to assess various measures thought to influence college students with disabilities and their willingness to seek help. The results revealed several statistically significant findings. "Students with lower self-perceived abilities rated themselves as having a more severe LD" (Hartman-Hall & Haaga, 2002, p. 267). These scores were all self-reported and more indicative of the participant's perception rather than the actual severity of his or her learning disability. Connected to this finding was that "no association was found between willingness to seek help and severity of LD ($r = .08, p = .48$), suggesting that other correlates of help-seeking are not simply proxies for a more basic and intuitive pattern such that those who need help the most seek it the most" (p. 267).

Using hypothetical situations of both positive and negative responses from professors and peers, the researchers indicated "that participants reported more willingness to seek help from learning services after reading positive responses" (Hartman-Hall & Haaga, 2002, p. 270). Furthermore, "participants reported the most willingness to seek help from learning services after reading about a professor's positive response to a request for an accommodation for an LD" (p. 270). These results suggest that a professor's positive support is a significant factor in helping to encourage students with a learning disability to seek necessary resources and support. Since a professor's response likely affects help-seeking behaviors, the authors provided one notable implication from their study: "A possible intervention would be to educate professors and college students about LDs and accommodations, as well as help them understand the impact their reactions to students' requests for help or assistance may have on students' academic decision" (p. 271).

The participants of this study were students who self-identified a learning disability which could potentially indicate an already-elevated level of help-seeking behavior. The study may not have captured those students who have extremely low help-seeking behaviors and involvement in the campus community. "Although students were interviewed extensively about the LDs, which had previously been professionally diagnosed, it is possible that students did not accurately report their LDs" (Hartman-Hall & Haaga, 2002, p. 272).

Other research has documented the lack of faculty knowledge about students with disabilities and the effect that positive faculty relationships can have on this population of students (Cornett-DeVito & Worley, 2005; Heiman & Precel, 2003; Thompson, Bethea, & Turner, 1997). Researchers Cornett-DeVito and Worley (2005) published a qualitative study of 21 college students with a learning disability exploring two research questions: (a) "What revelatory themes emerge from SWLD [students with a learning disability] narratives of critical learning experiences in higher education classrooms" (p. 317)?; and (b) "What teacher communication competencies can be inferred from SWLD narratives of critical learning experiences in higher education classrooms" (p. 317)? These research questions are rather unique to the general literature on learning disabilities because they explore how instructional interaction can influence the student's growth and learning. Most research related to the classroom experience and instructional interactions with learning disabilities has been conducted at the secondary education level (Allen & Shaw, 1990; Cooper & Simonds, 2003; Nussbaum, 1992); however, more recent research has begun to look at positive outcomes of support from faculty and staff during college (Frymier & Wanzer, 2003; Quick, Lehmann, & Deniston, 2003; Worley, 2000).

From their study, Cornett-DeVito and Worley (2005) identified key themes that emerged from 15 months of student interviews regarding communicatively competent instructors. Although several themes emerged, the first two themes accounted for 60% of the students' responses. Students with a learning disability want instructors who (a) "willingly provide individualized instruction that meets the student's needs" (p. 321) and (b) "build rapport and listen empathically" (p. 321). These results, although not surprising, succinctly denote the most important attributes of supportive instructors according to the students – instructors who withhold judgment, listen, and express an overall willingness to help the student succeed. Similarly, results for incompetent instructors were heavily weighted (nearly 60%) within the first two of the five identified themes: instructors who (a) "demonstrate a lack of knowledge about learning disabilities and accommodations" (p. 324) and (b) "actively resist accommodation" (p. 325). These negative responses suggest that faculty who, either intentionally or unintentionally, show a lack of support or knowledge of learning disabilities create a negative, unwelcoming environment. Overall, students with a learning disability feel more comfortable connecting with faculty who provide support and develop a positive relationship.

Campus Characteristics

Other than faculty, staff and peers, other components of the college environment have appeared in the literature to have a significant impact on the development of self-advocacy for students with a learning disability. Madaus (2005) combines previous sources of literature to look at the different types of support and services that occur at different types of institutions. Four different categories of services and support are discussed: (a) decentralized – a contact person with few services or established policies,

(b) loosely coordinated – generic services from a formal contact person but students are referred to other services, (c) centrally coordinated – an office with established policies, advanced services and professional support, and (d) data-based and comprehensive support – provide a full range of accommodations with an emphasis on student self-advocacy, individualized support and developed support plans. Based on the type of services that an institution provides, students with a learning disability must learn to navigate their environment in different ways. With little support, self-advocacy and a strong sense of independence become necessary for a student to excel, if not simply survive in the college environment (Cosden & McNamara, 1997; Mellard & Hazel, 1992).

Although Madus (2005) provides an understandable framework of the different ways that institutions of higher education structure support services for students with a disability, he fails to examine other components of the total campus environment. In fact, there is a significant lack of research on various dimensions of the college environment and its impact on college students with learning disabilities (Rath & Royer, 2002). In 2000, Strange authored a chapter in the *New Directions for Student Services: Serving Students with Disabilities* and used Moos' (1979, 1986) model of social climate and the model, Hierarchy of Learning Environments, which was later published with another colleague as a way to understand campus learning environments (Strange & Banning, 2001). Even though the chapter generally discusses inclusive environments for students with any type of disability, Strange provides some key ideas that are particularly relevant to understanding how institutional contexts can affect students with learning disabilities and the development of self-efficacy: (a) the larger the institution, “the more challenging

it might be to respond to the labor-intensive demands of individual difference” (p. 25), (b) institutions that devote energy to involve all students “engages participants in meaningful roles and responsibilities so that each is afforded appropriate opportunities for individual growth and development” (p 26), and (c) “Rapidly changing technologies offer both promises and challenges for the design and delivery of learning opportunities in postsecondary education. With appropriate access software and hardware...students with disabilities, in particular, might find the virtual community very inclusive and easier to access than negotiating the physical environment of the campus” (pp. 27-28).

Therefore, colleges and university characteristics (e.g., size, resources, and use of technology) may all influence aspects of development for college students with a learning disability; however, since the literature on environmental influences for this population of students is more descriptive and inferential, researchers cannot conclude that these specific aspects of the college environment actually influence the development of students with a learning disability, especially the development of something as specific as leadership self-efficacy. Therefore, studies that examine how campus characteristics interact with the development of a student’s leadership self-efficacy could significantly contribute to the literature. Refer to Table 2.5 for the I-E-O Model of Leadership Self-Efficacy that includes faculty/staff/student support and campus characteristics.

Table 2.5

I-E-O Model of Leadership Self-Efficacy

Input	Environment	Outcome
Pre-college self-advocacy	Faculty/staff/student support	Leadership Self-Efficacy
Pre-college experiences and involvement	Campus characteristics (e.g. institutional type and size)	
Type of disability		
Gender		
Race / ethnicity		
Socio-economic status		

Co-curricular Involvement

For the purposes of this research, co-curricular involvement is involvement outside the academic classroom; it can include on-campus and off-campus involvement that occur during a student's time in college. Like the literature on relationship with faculty and campus characteristics, the literature on co-curricular involvement specific to students with learning disabilities is also sparse. However, a significant amount of research on the entire college student population has been conducted to understand what students learn and how they grow as a result of their campus involvement (Astin, 1993; Kuh, 1995; Pike, 1995; Terenzini, Pascarella, & Blimling, 1996). Johnson (2000) synthesizes the findings of the breadth of literature on student involvement explaining that positive development in self-confidence and inter- and intra-personal competence are

related to involvement in student organizations, leadership positions and diverse interactions with peers. In fact, leadership development (e.g., taking initiative, developing group skills, and increased analytical ability) has been connected to co-curricular experiences like community service, employment and organizational involvement (Kuh, Schuh, Whitt, & Associates, 1991; Lambert, Terenzini, & Lattuca; 2006).

Community Service

Over the last two decades, students have become less worried about humanitarian concerns and more worried about career success; as a result, “institutions have responded to this trend by establishing leadership development programs, volunteer and community service centers, and other programs designed to involve students as social participants in their institutions and communities” (Astin & Antonio, 2000, p. 3). In their study of 6,491 students from the National Education Longitudinal Study of 1988 (NELS:88) database, Marks and Jones (2004) reported that the majority of students (53%) began community service work during college.

With the rise in increasing high school service requirements, Vogelgesang and Astin (2005) found that although high school community service is increasing, participation in community service during and after college is decreasing.

While 80.3 percent of the students surveyed had participated in community service in the year prior to entering college, this figure declined to 74.4 percent by the senior year of college and to 68.1 percent six years after completing college.

(p. 2)

Although this research indicates a decline in engagement in community service, it is not compared to community service involvement for individuals who did not attend

postsecondary schooling. Due to this fact, it cannot be concluded that college has a negative effect on community service engagement without a comparative sample of people who did not experience the college environment.

Returning to this study's definition of leadership, "the approach to leadership is a purposeful, collaborative, values-based process that results in positive change" (Cilente, in press). Community service is one way for students to become positive change agents within their communities and strengthen their values and sense of purpose (Marks & Jones, 2004). Thus, students who are engaged in community service activities would seem more likely to develop a stronger sense of personal values and sense of purpose than those students who do not engage in such activities. Other than community service, employment during college has also been shown to contribute to positive college outcomes.

Employment

"College student employment has been increasing steadily for at least four decades. At present, approximately 80% of all college students are employed while completing their undergraduate education" (Riggert, Boyle, Petrosko, Ash, & Rude-Parkins, 2006, p. 63). Employment has been considered a factor of involvement for, at least, the last twenty years (Astin, 1984; Pascarella, & Terenzini, 1991), and researchers have often differentiated between on-campus and off-campus employment to explore various outcomes from student employment during college (Dundes & Marx, 2006/2007; Lundberg, 2004).

Lundberg (2004) used a sample of 3,774 undergraduates to see if working off-campus affected student involvement and student learning. Contrary to previous studies,

Lundberg found that working only hindered involvement while learning was unaffected. Therefore, the researcher concluded that working students are unable to be as engaged in campus activities yet they find ways to compensate for their learning. Since multiple regression was methodology used for this study, causation could not be concluded from the results.

In their review of literature on student employment in higher education, Riggert and his colleagues (2006) concluded that “there is considerable inconsistency and even contradiction in the empirical literature regarding the impact of work on the college experience” (p. 88). The researchers explain that little is known about how student, college and work characteristics contribute to a student’s personal growth and success. Since a majority of students work during college, this area is an important aspect of the college experience to explore (Riggert).

Specific to leadership development, some authors have shown the positive impact of employment on leadership outcomes (Endress, 1999; Gardner, 1996; Luzzo, 1999). “College student employment positively affects students in terms of leadership development” (Luzzo, p. 3). Luzzo further explains that students who are employed during college are more likely to accept criticism from supervisors, work productively in a group, and effectively manage their time and resources. Similarly, Endress found additional positive outcomes from on-campus student employment by studying a specific organization that hires students. The researcher found that, as a result of their employment experience, students enhanced their ability to communicate, negotiate challenging situations, and determine areas of future growth. Although Riggert et al. (2006) question the impact of employment on the college experience, several researchers

have found positive leadership outcomes as a result of a student's employment experience. Additional studies that examine how work experiences affect student leadership development have the potential of helping to clarify the ambiguity that exists within the literature on student employment.

Organizational Involvement

In a study exploring the intersection of gender and identity with student leadership development, Kezar and Moriarty (2000) concluded that "involvement opportunities are clearly important for the development of leadership among all groups, yet different types of involvement opportunities are helpful in developing leadership for each subgroup" (p. 67). Since the study focused on gender and ethnicity, it does not provide results for college students with learning disabilities. However, the results of this study indicate that specific studies need to be conducted in order to understand what involvement opportunities are important to particular groups of college students, including college students with learning disabilities.

Several other researchers have shown positive changes in leadership development and overall success in college as a result of involvement in campus organizations (Baxter-Magolda, 1992; Kuh, Schuh, & Whitt, 1991; Cooper, Healy, & Simpson, 1994). In fact, Cooper, Healy and Simpson found that the opportunity to participate in leadership roles not only contributed to growth for students who had never experienced such a role before, but it also provided the opportunity for individuals who had previously participated in leadership roles to continue and advance their leadership development. This suggests that even if students with a learning disability have had the opportunity to hold a leadership position, they can benefit from continued opportunities to assume an

elevated role within a student organization.

Academic Involvement

Although the majority of colleges and universities discuss the development of student leaders within their mission statements (Boatman, 1999; Council for the Advancement of Standards in Higher Education [CAS]), “most institutions have traditionally only paid minimal attention to the development of their students as leaders in terms of offering specific leadership programs or curricula” (Cress, Astin, Zimmerman-Oster, & Burkhardt, 2001, p. 15). Since researchers have studied leadership programs for several decades (Roberts, 1981; Roberts & Ullom, 1990; Zimmerman-Oster & Burkhardt, 1999), they have shown clear evidence of student gains as a result of leadership development programs.

Cress and colleagues (2001) utilized longitudinal data of 875 students from 10 institutions and found that “leadership participants reported changes since college entry that were statistically greater than changes for nonparticipants in the development of social and personal values, leadership ability and skills, civic responsibility, multicultural awareness and community orientation, and leadership understanding and commitment” (p. 19). Indeed, structured leadership development programs have a significant effect on multiple developmental outcomes for college students. The authors caution that the results may be biased since most of the programs are based on student choice; therefore, the differences could be attributed to student motivation rather than student growth.

Dugan and Komives (2006) reported that from the 49,078 students included in the multi-institutional study of leadership (the data set used in this study), 11.4% had previously studied abroad, 36.0% had completed an internship, 19.0% had participated in

a learning community, and 35.3% had participated in some type of academic or professional organization. The researchers reported that “students who are involved in even one campus organization were higher on all leadership dimensions than those who are never involved” (p. 17). Other studies have shown that these academically-related experiences have had a significant effect on the development of a student’s leadership ability (Inkelas, Vogt, Longerbeam, Owen, & Johnson, 2006b; Kitsantas, 2004). Table 2.6 incorporates academic involvement and components of students’ co-curricular involvement.

Table 2.6

I-E-O Model of Leadership Self-Efficacy

Input	Environment	Outcome
Pre-college self-advocacy	Faculty/staff/student support	Leadership Self-Efficacy
Pre-college experiences and involvement	Campus characteristics (e.g. institutional type and size)	
Type of disability	Community Service	
Gender		
Race / ethnicity		
Socio-economic status	Employment	
	Organizational Involvement	
	Academic Involvement	

Leadership Self-Efficacy

As early as 1977, Bandura began to integrate self-efficacy, the dependent variable of this study, into his theories of social learning and social cognition. Bandura (1977) described that “an efficacy expectation is the conviction that one can successfully execute the behavior required to produce the outcomes” (p. 79). Over the next few decades, he refined and expanded his definition of self-efficacy to: “perceived self efficacy refers to one’s capabilities to organize and execute the courses of action required to manage prospective situations” (Bandura, 1995, p. 2). Self-confidence, self-esteem and self-efficacy are often used interchangeably, but they are separate constructs. “Self-confidence is a generalized sense of competence that has been considered a personal trait; thus, it is not subject to change. In contrast, self-efficacy is a personal belief, a self-judgment about one’s specific task-specific capabilities” (McCormick, Tanguma, & López-Forment, 2002, p. 3). Self-efficacy is an individual’s *belief* while self-esteem and self-confidence are considered *traits*. “Although self-esteem and self-efficacy have been investigated for many years, there is little published research dealing with these constructs among college students with disabilities” (Blake & Rust, 2002, p. 217).

The construct of self-efficacy has been applied to a number of disciplines and populations (Engels, Hale, Noom, & De Vries, 2005; Jones & Prinz, 2005; Poyrazli et al., 2002), and within the past decade, self-efficacy has become more apparent within the leadership development literature (Denzine, 1999; Hoyt, 2005; McCormick, 2001; McCormick, Tanguma, & López-Forment, 2002; Pearlmutter, 1999). This last portion of the literature review will examine leadership self-efficacy or the belief in one’s ability to engage in the practice of leadership by organizing and executing the needed courses of

action. Bandura's (1977, 1982) four sources of self-efficacy (i.e., mastery experiences, vicarious experiences, verbal persuasion, and psychological and emotional state) will serve as the section's organizing framework; also, this section will incorporate new pieces of literature relevant to the outcome of leadership self-efficacy as well as synthesize and organize the other sources of literature that were introduced earlier in this chapter.

Self-efficacy can be classified into four sources of influence; although the four sources of self-efficacy are introduced in a specific order within this chapter, they are not intended to serve as a linear or hierarchical construct (Bandura, 1995). Rather, it is the combination and relationships between the efficacy sources that strengthen and develop an individual's sense of efficacy. Although mastery experiences may contribute the most significant and direct growth to self-efficacy (Pearlmutter, 1999), the other sources of efficacy, vicarious experiences, verbal persuasion, and psychological and emotional state, all contribute in different yet complementary ways.

Mastery Experiences

Individual accomplishments or experiences that decrease self-doubt or reinforce previous positive experiences can give an individual a sense of accomplishment and success. These *mastery experiences* allow students to build their leadership skills and expose them to leadership in different contexts. For college students with a learning disability, certain leadership mastery experiences can take place during high school, in the college classroom, and within student clubs and organizations (Blake & Rust, 2002, Kurtz & Hicks-Coolick, 1997; Kuh, Schuh, Whitt, & Associates, 1991). However,

there are unique considerations when looking at leadership self-efficacy mastery experiences for students with a learning disability.

A mastery experience in high school (e.g., presenting in front of a class or involvement in a student group) is often very different than college. For students with a learning disability, this difference can be greater because their sources of support significantly change due to the shift from IDEA regulations to ADA regulations (Trainor, 2007). During high school, students with a disability are more likely to have a counselor or teacher actively providing opportunities for mastery experiences; while in college, they experience far less individualized attention and support (Madaus, 2005). However, if a student has been encouraged to participate in mastery experiences prior to college, they are more likely to have a higher sense of self-efficacy since repeated experiences gradually build a student's sense of self-efficacy (Bandura, 1982; Bergin, 1996; Pearlmutter, 1999). Therefore, the literature would suggest that the more leadership mastery experiences that students with a learning disability have had before college, the higher their sense of leadership self-efficacy would be.

This concept would also translate to students' experiences during college; the more college leadership mastery experiences student have, the higher their leadership self-efficacy. Literature not specific to disabilities has supported this assertion, and therefore, compared to a first-year student, a college senior would be more likely to have a higher sense of leadership self-efficacy since that senior has had a longer amount of time in college to engage in mastery experiences (Dugan & Komives, 2006). As previously mentioned, Dugan and Komives found that students, from a 49,078 student sample at 52 institutions, were involved in community service (54%), employed off-

campus (35.9%), employed on campus (26.7%), and participated in an academic or professional organization (35.3%). Since the student and institutional sample size were both very large, the data offer information that may be more generalizable than other studies of leadership development with significantly lower sample sizes. Although these findings appear logical to apply to students with a learning disability, there appears to be no specific studies within the literature that examine how involvement and mastery experiences affect college students with a learning disability, and researchers should be cautious to simply apply these generalized findings to this understudied population.

A unique mastery experience that students with a disability face is disclosing their disability to professors, staff and peers, as well as advocating for their needs when they are not being met. Janiga and Costenbader's (2002) study of disability service coordinators revealed that students' self-advocacy skills are considered underdeveloped when beginning college, and as students progress through college, they develop stronger self-advocacy skills as they negotiate their needs with a professor's expectations (Brinckerhoff, 1994; Hadley, 2006; Skinner, 1998). Some students may struggle with their ability to advocate for their needs, but at least one study of college students found that students with a disability, compared to their non-disabled peers, scored higher on a social self-efficacy scale, or how comfortable they were interacting with others, which the authors hypothesized "could be that college students with disabilities have had to over-come many obstacles in their lifetime in order to be enrolled at college" (Blake & Rust, 2002, p. 219). Interactions with professors in the classroom can serve as additional sources that affect self-efficacy, especially verbal persuasion.

Vicarious Experiences

With *vicarious experiences*, students with a learning disability observe other people accomplishing tasks that, in turn, they believe they can accomplish. For this source of efficacy to be most effective, the role model and observer should have relatively similar characteristics (Bandura, 1995). "Through their behavior and expressed ways of thinking, competent [role] models transmit knowledge and teach observers effective skills and strategies for managing environmental demands" (Bandura, p. 4). There are several factors to consider when looking at vicarious leadership experiences for students with a learning disability: (a) the nature of an invisible disability, (b) the relatively low number of students with a disability in higher education, (c) the time of diagnosis, and (d) general levels of self-confidence and self-esteem.

Hampton and Mason (2003) compared self-efficacy for high school students with a learning disability to their non-disabled peers. Important to this study, the researchers found that students with a learning disability had "fewer role models" ($p < .0001$) when compared to their peers. Other research has supported the importance, and need, for role models and support for students with a learning disability (Field, Sarver, & Shaw, 2003; Skinner, 2007; Vogel, Fresko, & Wertheim, 2007); however, role models with a learning disability can be more difficult to find because college students with a learning disability are a small percentage of the total population of college students (Henderson, 1999, 2001), and the disability cannot be seen through simple observation (Bessell & Moss, 2007; Phemister & Crewe, 2007; Scrambler, 2004). Since Bandura (1995) explains that vicarious experiences are more effective when the role model has similar characteristics,

students with a learning disability may find a role model without a learning disability yet have difficulty relating their role model's success to their potential success.

One strong source for vicarious experiences for this population could lie in the fact that, compared to students with other types of disabilities, college students with a learning disability are more likely to have parents who were college graduates (Henderson, 2001). This parental modeling could help to demystify components of the college experience which may be perceived as difficult by the student. Additionally, since the students' parents have previously experienced the college environment, they could more likely offer suggestions of how the student can approach different situations (e.g., a professor unwilling to meet, different types of exams) by adapting their own experiences with the knowledge of their child's disability.

An early diagnosis of a learning disability gives students more time to integrate the disability into their identity (Giovingo, Proctor, & Prevatt, 2005; Proctor & Prevatt, 2003; Troiano, 2003). An earlier diagnosis also gives the student a greater chance to connect with other peers and individuals with a learning disability. Without a diagnosis, students with a learning disability may look at the success of a role model or other peers and wonder why they are not able to get an A on the test, stay as organized, or receive as much positive feedback from professors as their peers (Hartman-Hall & Haaga, 2002; Janiga & Costenbader, 2002). These factors can contribute to other sources of self-efficacy including verbal persuasion and the student's psychological and emotional state. Without significant vicarious experiences, students with a learning disability may have a harder time believing that they have the capacity for leadership.

Verbal Persuasion

Individuals are more likely to attempt new behaviors and experiences if they are told by others that they are capable of accomplishing them (Bandura, 1977, 1982, 1995; Schyns, 2004). This verbal affirmation can happen in individual and group settings, and it is most effective when individuals are encouraged “to measure their success in terms of self-improvement rather than triumphs over others” (Bandura, 1995, p. 4). The approach to focus on self-improvement over comparison to others can be particularly salient for college students with learning disabilities who may have been told that they were not capable of doing something because of their disability or that they could not do it as well as their peers.

Since research has shown that positive faculty and staff communication has a significant positive impact on the confidence level of students with a learning disability (Cornett-DeVito & Worley, 2005; Frymier & Wanzer, 2003), faculty and staff in higher education may serve as strong sources of self-efficacy development by verbally encouraging students to try something new, try something they failed at again or reinforce a positive leadership experience the students have had. On the other hand, Bandura (1995) cautions that premature or unrealistic persuasion could result in negative experiences, leaving the student discouraged and wanting to avoid other challenging situations.

Prior to college, high school teachers, guidance counselors and parents can have a similar positive influence on students with a learning disability (Janiga & Costenbader, 2002; Lavoie, 2007). Since there is no specific literature regarding the effects of verbal persuasion on leadership self-efficacy for college students with a learning disability, it is

not clear whether students are more likely engage in leadership experiences during college if they were verbally persuaded by others to do so prior to college. This gap in the literature warrants new research to understand what verbal cues are most effective in building a student's sense of self-efficacy before they begin college. Such research could also help student affairs educators and college counselors uncover effective verbal interventions that encourage this population of students to fully engage with their environment.

Psychological and Emotional States

Although the *psychological and emotional states* source of self-efficacy is described as one of the weakest sources of efficacy, an individual's emotions may be strong enough to attempt a difficult situation (Bandura, 1995; Denzine, 1999; Hampton & Mason, 2003; Pearlmutter, 1999). According to Bandura (1995), psychological and emotional states involve how individuals perceive and interprets their physical and emotional reactions. This includes emotional regulation, bodily awareness, pain, fatigue and the ability to cope with negative situations. It is important to note that positive emotions and an overall positive psychological state have rarely been studied; most research in this area for students with a learning disability operates from a deficit perspective (i.e., bad mood, poor emotional functioning, psychological disorders) (Lackaye, Margalit, Ziv, & Zinman, 2006).

Many authors have described learning disabilities as a neurological dysfunction and indicate deficits in processing and functioning due to the disability (Gregg, Scott, McPeck, & Ferri, 1999; Hall, Spruill, & Webster, 2002; NJCLD, 1990). Difficulty processing thoughts and feelings could prove challenging to students with a learning

disability who may struggle to cognitively organize and interpret their feelings regarding a specific situation. However, Lackaye, Margalit, Ziv, and Zinman (2006) found that, compared to peers without a learning disability, students with a learning disability showed no significant difference in emotional self-efficacy. Although this study was conducted on adolescents not in college, it highlights the need to research if college students with a learning disability do have a different level of emotional self-efficacy or if they are similar to their peers without a learning disability.

Since college students with a learning disability are more likely to be older than their peers without a learning disability (Henderson, 2001), some researchers argue that their age could suggest an elevated level of maturity (Heiman & Precel, 2003); therefore, college students with a learning disability could have higher levels of leadership self-efficacy because of their higher level of maturity. This conjecture lacks any significant research, as does the overall understanding of what factors contribute to the development of leadership self-efficacy for this population.

Conclusion

Little research has critically examined the intersections of leadership self-efficacy development and college students with a learning disability. While Bandura (1977) introduced the construct of self-efficacy over 30 years ago, it has not been significantly integrated within the literature on individuals with a learning disability (Baum & Owen, 1988; Green-Black, 1988; Lackaye, Margalit, Ziv, & Ziman, 2006; Reis, Neu, & McGuire, 1995). This noticeable gap within the literature provides a clear impetus for this study. The next chapter, Chapter Three, covers the methodology of this study.

CHAPTER 3: METHODOLOGY

This chapter will present an overview of the research design and methodology. Contents of Chapter Three include: research question and hypotheses, general framework of study, design of MSL national study, sampling strategy, variables, instrumentation including tests for reliability and validity, procedures and data collection, and data analysis.

Research Question and Hypotheses

The purpose of this study was to investigate whether student characteristics, pre-college experiences or college experiences contribute to the development of leadership self-efficacy for college students with a learning disability.

Since the previous literature was not conclusive of a directional change in leadership self-efficacy development for college students with a learning disability, the following hypotheses are stated in the null:

Hypothesis 1: Collectively, student characteristics, pre-college involvement, and pre-college measures of leadership self-efficacy do not significantly contribute to the development of leadership self-efficacy for college students with a learning disability.

Hypothesis 2: Class standing does not significantly contribute to the development of leadership self-efficacy for college students with a learning disability.

Hypothesis 3: Mentorship from faculty, staff, students, community members, and employers does not significantly contribute to the development of leadership self-efficacy for college students with a learning disability.

Hypothesis 4: College experiences, including community service, employment, organizational involvement, positions in organizations, and leadership training/education,

do not individually or as a group contribute in a significant way to the development of leadership self-efficacy for college students with a learning disability.

Hypothesis 5: Campus climate does not contribute in a significant way to the development of leadership self-efficacy for college students with a learning disability.

General Framework of Study

As discussed in Chapters One and Two, this study was developed using a modified approach to A.W. Astin's (1991) inputs-environments-outcomes (I-E-O) college impact model as a framework (Komives & Dugan, 2005). The goal of this design is to understand the amount of variance in the dependent variable that is explained by multiple independent variables. The I-E-O conceptual framework paired with multiple regression allows researchers to measure the variance that inputs of the study have on the output while also measuring the variance in the output that is attributed to components of the environment. For more information on the I-E-O model, refer to Chapters One and Two.

Although there are many strengths when approaching research using the I-E-O model (e.g., controlling for the students' experiences prior to college and isolating components of the college environment), this study has one significant limitation according to its design. Since the students completed the survey at the same point in time, their responses are a quasi-pre-test / post-test design and not a true pre-test / post-test design. Rather than having students reflect on pre-college experiences, Astin (1991) indicates that a true pre-test prior to college, thus necessitating the collection of student longitudinal data, is a more rigorous way to assess and compare student experiences. Cross-sectional data limits the accuracy when measuring previous experiences and perceptions.

Design

This study uses hierarchical multiple regression statistical analysis in order to better understand which input and environmental factors contribute to any variance in the development of leadership self-efficacy for students with a learning disability. Using secondary data collected through the Multi-Institutional Study of Leadership during the spring of 2006, this study's quantitative design examines the nationally-collected data from 815 undergraduate students with a self-reported learning disability at 52 institutions. The national data from the MSL instrument were chosen for several reasons. First and foremost, the data directly measure the dependent and independent variables included in this study. Second, the MSL is the largest, current study of college student leadership development that spans dozens of institutions across the country while differentiating students with and without a learning disability.

Compared to an in-depth study of one institution, the multi-institutional approach increases the probability that the results can generalize to students in a variety of institutional and geographic contexts. Next, the instrument's self-efficacy scale has consistently been found to be both valid and reliable, with Cronbach alpha values for the reliability ranging from 0.81 to 0.89. Finally, with the increasing number of students with a learning disability attending college and the limited amount of research and information in the literature, this recent study captures current data about the population of college students with a learning disability that, in turn, can produce significant findings for both future research and practice (Henderson, 2001).

Design of MSL National Study

The Multi-Institutional Study of Leadership Student Survey (MSL-SS) instrument (Appendix A) was developed by a team of researchers at the University of Maryland including: one professor in the Counseling and Personnel Services Department, members of the National Clearinghouse for Leadership Programs, doctoral and master's students in the College Student Personnel program, and student affairs educators working on campus. This team worked in conjunction with the Survey Sciences Group, Inc. (SSG) to conduct the national study. The MSL contains a number of different scales and variables; for the purpose of this research, the Leadership Efficacy Scale was used to operationalize the dependent variable.

Pilot Tests

Two pilot tests were conducted. The respondents were a convenience sample selected by team members according to their leadership knowledge and involvement on campus. The vast majority of respondents indicated that the survey, which took approximately 30 minutes to complete, seemed long and repetitious. Other than survey length, the participants offered a few, specific word changes that were incorporated into the final version of the MSL-SS.

Following the first pilot test, a second, web-based pilot test was conducted with a sample of 3,411 at the University of Maryland in December 2005. A total of 782 (23% of the sample) participated in the pilot test study with 88% completing the entire instrument. The goals of the second pilot study were (1) to provide data to factor analyze for scale development and (2) to identify the point at which students stopped responding to the questions, or survey fatigue; therefore, the response rate was not a significant reason for

concern, especially since the pilot test was only available for students to complete during five days while final exams were occurring on campus.

As a result of both pilot tests, the MSL research team identified ways to reduce the items further – particularly Tyree’s original SLRS scale (Tyree, 1998; Dugan, 2006a, 2006b). The combination of pilot tests allowed the research team to critically examine both the instrument’s content and construct validity before launching the national multi-campus study. The next section explains the sampling strategy for the national multi-campus study and this study.

Sampling Strategy

For the purposes of this study, a pre-existing data set was used – data collected from the Multi-Institutional Study of Leadership (MSL). The MSL research team surveyed college students at multiple institutions across the United States, and this *ex post facto* research design was chosen since the data set provides a rich source of data on college student leadership development while also identifying whether a student has a learning disability. Two sampling procedures were used in the study: one for institutions and one for student participants.

Sample of Institutions

After the study was initially publicized, over 150 institutions expressed interest in participating by completing the necessary application and providing information on relevant institutional characteristics. From that original institutional population, 55 colleges and universities were chosen to participate in the study. Institutions were purposefully selected to create a sample that reflected the diversity of institutional types within the American higher education system according to the following characteristics:

institutional type and control, Carnegie classification, geographic location and different types and levels of leadership development programs. The last characteristic was assessed from the application materials.

Prior to data collection, two institutions withdrew from the study and an additional institution was unable to comply with the study's protocol. Therefore, a total of 52 institutions served as the sample of this study. The diverse institutional sample included two community colleges, three women's colleges, two Hispanic Serving Institutions (HSI), and two Historically Black Colleges and Universities (HBCU). Refer to Table 3.1 for institutional characteristics and Table 3.1 for the number of students with a learning disability at institutions with different Carnegie types. Students with a learning disability were present at every institution within the sample.

Table 3.1

Institutional Characteristics

Institutional Characteristics (n=52 institutions)	Percentage
<u>Control</u>	
Public	58%
Private	42%
<u>Carnegie Classification</u>	
Research Institutions	62%
Masters Institutions	21%
Baccalaureate Institutions	13%
Associates Institutions	4%
<u>Undergraduate Population Size</u>	
Small (0 to 3,000 students)	19%
Medium (3,001 to 10,000)	29%
Large (10,001 and above)	52%

Table 3.2

Students with a Learning Disability per Carnegie Type

Institutional Characteristics (n=52 institutions)	Frequency
<u>Carnegie Classification</u>	
Research Extensive Institutions	256
Research Intensive Institutions	133
Masters Institutions	215
Baccalaureate Institutions	75
Associates Institutions	38

Sample of Students

To follow sampling consistency at each of the 52 institutions, researchers followed certain guidelines:

1. Institutions with fewer than 4,000 students in the entire undergraduate population conducted a full population sample.
2. A simple random sample was drawn for institutions with an undergraduate population that exceeded 4,000 students. The simple random sample was selected to maximize the research's generalizability based on the sample. For each of these larger institutions, total sample size was calculated using a 95% confidence level with a ± 3 confidence interval.
3. Finally, the researchers purposefully oversampled student participants by multiplying this number by 70% to identify the total number of cases for each institution's sample. Oversampling was conducted with the goal of yielding a 30% response rate, at minimum.

Out of the total sample of 154,716 students, 37% of the sample, or 56,854 students, completed the survey. A 37% response rate is acceptable when compared to an expected response rate of 25 - 35% for web-based surveys (Crawford, Couper, & Lamia, 2001).

Sample for Study

From the 56,854 student sample, 5,737 students self-identified some type of disability. Specifically, 815 students self-identified as having a learning disability. After cleaning the data and eliminating students with missing responses for the study's variables, the final n was 717 students. Therefore, this research will use the sample of 717 students at 52 institutions across the country who identified a learning disability on the MSL instrument and completed at least 90% of the survey.

Due to this rather large number of students eliminated because of missing data, descriptive statistics were run to see if there were significant differences between the original sample of 815 students and the final n of 717. The reduction in usable data did not drastically alter the demographics of the sample. The demographic frequencies for both samples can be found in Appendix F.

Variables

There were several variables included in this study, and they were grouped according to input, environmental and outcome variables. The independent variables were grouped into blocks within the input and environmental variables while the dependent variable, leadership self-efficacy, is the singular outcome variable of the study. Although some of the variables were selected from the extensive review of current literature, several variables were selected to explore aspects of the pre-college and

college experience for college students with learning disabilities that are not found within the existing literature.

Input Variables

The input variable general categories include the student's (1) demographic information, (2) pre-college involvement and experiences and the student's (3) perception of leadership self-efficacy prior to college. There are 8 specific input variables in this study: (1) Race / Ethnicity; (2) Gender; (3) Age; (4) Socio-economic status; (5) Other disabilities; (6) Off-campus pre-college involvement; (7) On-campus pre-college involvement; and, (8) Leadership efficacy pre-test. Table 3.3 provides the specific items from the MSL instrument used to measure each of these variables. This table also includes collapsed categories and variable coding.

Environmental Variables

The environmental variables comprise elements of the (1) mentorship, (2) college involvement and experiences for the student, and (3) leadership experiences. Eleven variables are used within this section of the I-E-O model: (1) Carnegie classification; (2) Class standing; (3) Mentorship; (4) Off-campus employment; (5) Community service; (6) Off-campus leadership position; (7) On -campus employment, (8) Involvement; (9) On-campus leadership position; (10) Length of training/education; and, (11) Campus climate. Refer to Table 3.3 for the specific items from the MSL-SS used to measure these variables.

Outcome Variable

There is one outcome variable used for this study, leadership self-efficacy. Refer to Table 3.4 for the items and measures of leadership self-efficacy particular to this study.

Table 3.3

Independent Variables

Block	Measure	Item	Response Choices*	Variable Type
			<i>*dummy coding is noted where used</i>	
Block 1				
Race / Ethnicity	category	31. Please indicate your racial or ethnic background. (Mark all that apply)	<ul style="list-style-type: none"> ▪ White/Caucasian (referent) ▪ African American/Black (y/n) ▪ American Indian/Alaskan Native (y/n) ▪ Asian American/Pacific Islan. (y/n) ▪ Latino/Hispanic (y/n) ▪ Multiracial or multiethnic (y/n) ▪ Race/ethnicity not included above (y/n) 	Input
Gender	category	28. What is your gender?	<ul style="list-style-type: none"> ▪ Female (1) ▪ Male (0) 	Input
Age	numerical	27. What is your age?	Respondents were given a blank box to insert their age. (continuous data)	Input

Block	Measure	Item	Response Choices*	Variable Type
Block 1 (<i>cont</i>)				
Socio-economic status	category	35. What is the <u>HIGHEST</u> level of formal education obtained by any of your parent(s) or guardian(s)? (Choose one)	<ul style="list-style-type: none"> ▪ No college (0) ▪ Some college or Bachelor’s degree (1) ▪ Graduate or advanced degrees (2) ▪ Unknown (3) 	Input
	score	36. What is your best estimate of your parent(s) or guardian(s) combined total income from last year? If you are independent from your parents, indicate your income. (Choose one)	<ul style="list-style-type: none"> ▪ Less than \$12,500 - \$39,000 (referent) ▪ \$40,000 - \$74,999 (y/n) ▪ \$75,000 - \$99,999 (y/n) ▪ \$100,000 – \$100,001 and over (y/n) ▪ Don’t know (y/n) ▪ Rather not say (y/n) 	Input
Block 2				
Other Disabilities	category	32. Do you have a mental, emotional, or physical condition that now or in the past affects your functioning in daily activities at work, school, or home? <i>If respondent answered “YES,” then they were instructed to “Please indicate all that apply”</i> [Note: “Learning Disability” is excluded from the original choices.]	<ul style="list-style-type: none"> ▪ Sum of additional disabilities identified (0 to 9) 	Input

Block	Measure	Item	Response Choices*	Variable Type
Block 3				
		9. Looking back to <i>before you started college</i> , how often did you engage in the following activities: (Circle <u>one</u> response for each)		
Off-campus Pre-college involvement	score	9.1 Performing volunteer work	From Never (1) to Very Often (4)	Input
	score	9.5 Participating in community organizations (e.g. church youth group, scouts)	From Never (1) to Very Often (4)	Input
On-campus Pre-college involvement	score	9.2 Participating in student clubs/groups	From Never (1) to Very Often (4)	Input
	score	9.3 Participating in varsity sports	From Never (1) to Very Often (4)	Input

Block	Measure	Item	Response Choices*	Variable Type
Block 4 Leadership Efficacy Pre-test	score	<p>Leadership Efficacy Pre-test scale using the below items (8.7 to 8.10)</p> <p>8. Looking back to <i>before you started college</i>, how confident were you that you would be successful at the following: (Circle <u>one</u> response for each)</p> <p>8.7 <i>Leading others</i></p> <p>8.8 <i>Organizing a group's tasks to accomplish a goal</i></p> <p>8.9 <i>Taking initiative to improve something</i></p> <p>8.10 <i>Working with a team on a group project</i></p>	From Not at all confident (1) to Very Confident (4)	Input
Block 5 Carnegie Classification	category	<i>[Reported by institution]</i>	<ul style="list-style-type: none"> ▪ Associates (0) ▪ Bachelors (1) ▪ Masters (2) ▪ Research Intensive (3) ▪ Research Extensive (4) 	Environment

Block	Measure	Item	Response Choices*	Variable Type
<hr/>				
Block 6				
Class Standing	category	3. What is your current class level? (Choose One)	<ul style="list-style-type: none">▪ First year/freshman (0)▪ Sophomore (1)▪ Junior (2)▪ Senior (3)	Environment (<i>intermediate outcome</i>)
<hr/>				
Block 7				
		15. At any time <u>during your college experience</u> , how often have you been in mentoring relationships where another person intentionally assisted your growth or connected you to opportunities for career and personal development?		
Mentorship	score	15.1 Student affairs staff (e.g., a student organization advisor, career counselor, the Dean of Students, or residence hall coordinator)	From Never (1) to Many (4)	Environment
	score	15. 2 Faculty	From Never (1) to Many (4)	Environment
	score	15.3 Employers	From Never (1) to Many (4)	Environment
	score	15.4 Community members	From Never (1) to Many (4)	Environment

Block	Measure	Item	Response Choices*	Variable Type
	score	15.5 Other students	From Never (1) to Many (4)	Environment
Block 8				
Off-campus Employment	score	4. Are you currently working OFF CAMPUS? (Circle one)	<ul style="list-style-type: none"> ▪ Yes (0) ▪ No (1) 	Environment
Community Service	score	6. In an average academic term, do you engage in any community service?	<ul style="list-style-type: none"> ▪ Yes (0) ▪ No (1) 	Environment
Off-campus leadership position		13.4 held a leadership position in a community organization? (for example, serving as an officer for a club or organization, leaders in a youth group, chairperson of a committee)	<ul style="list-style-type: none"> ▪ Yes (0) ▪ No (1) 	Environment
Block 9				
On-campus Employment	score	5. Are you currently working ON CAMPUS? (Circle one)	<ul style="list-style-type: none"> ▪ Yes (0) ▪ No (1) 	Environment
Breadth of Involvement	score	14. Which of the following kinds of student groups have you been involved with during college? (Check <u>all</u> the categories that apply)	21 student groups are presented (e.g., Honor Society, Religious, Service, Sports-Club, SGA). Therefore, respondents could score between 0 to 21.	Environment

Block	Measure	Item	Response Choices*	Variable Type
Block 9 (cont)				
On-campus leadership position	score	13.2 held a leadership position in a college organization? (for example, serving as an officer for a club or organization, captain of an athletic team, first chair in a musical group, section editor of the newspaper, chairperson of a committee)	<ul style="list-style-type: none"> ▪ Yes (0) ▪ No (1) 	Environment
Block 10				
Leadership Experiences	scale	17b. Short-Term Experiences (ex. individual or one-time workshops, retreats, conferences, lectures, or training)	From Never (1) to Many (4)	Environment
	scale	17b. Moderate-Term Experiences (ex. a single course, multiple or ongoing retreats, conferences, institutes, workshops, and/or training)	From Never (1) to Many (4)	Environment
	scale	17b. Long-Term Experiences (ex. multi-semester leadership program, leadership certificate program, leadership minor or major, emerging leaders program, living-	From Never (1) to Many (4)	Environment

Block	Measure	Item	Response Choices*	Variable Type
		learning program)		
Block 11				
Campus Climate	Scale	24. Select the number that best represents <u>your experience</u> with your overall college climate.	From Closed, hostile, intolerant, unfriendly (1) to Open, inclusive, supportive, friendly (7)	Environment

Table 3.4

Dependent Variable

Dependent Variable	Items	Response Range
Leadership Self-Efficacy	<p>Leadership Efficacy scale using the below items (22.1 to 22.4)</p> <p>22. How confident are you that you can be successful at the following: (Circle <u>one</u> response for each.)</p> <p><i>22.1 Leading others</i></p> <p><i>22.2. Organizing a group's tasks to accomplish a goal</i></p> <p><i>22.3 Taking initiative to improve something</i></p> <p><i>22.4 Working with a team on a group project</i></p>	From Not at all confident (1) to Very Confident (4)

Instrumentation

The final MSL-SS instrument consisted of 37 questions, many of which had multiple items and scales within the question. Additionally, each of the 52 participating institutions was permitted to ask 10 additional campus-specific questions at the end of the survey. Using Astin's (1991) I-E-O framework, the 37 standard questions were developed to gather data regarding the respondents' demographic information, pre-college experiences and involvement, their experiences and involvement during college, and leadership-related outcomes. Other than the scale of leadership efficacy used in this study and the previously mentioned SRLS-R2 scale for socially responsible leadership,

scales of cognitive development, discussion of socio-cultural issues, and diversity appreciation were developed by the National Study of Living Learning Programs (NSLLP). These scales were incorporated, with some minor modifications, into the MSL-SS with permission of the NSLLP researchers (Inkelas, Vogt, Longerbeam, Owen, & Johnson, 2006a).

Leadership Efficacy Scale

Members of the MSL research team developed the Leadership Efficacy Scale through an extensive review of related literature and then further refined the questions within the scale through expert review. The selected survey items were validated through expert review, including expert members of the research team as well as campus liaisons at the participating institutions. This construct is measured using a series of four questions asking the respondent “How confident are you that you can be successful at the following: (1) Leading others, (2) Organizing a group’s tasks to accomplish a goal, (3) Taking initiative to improve something, and (4) Working with a team on a group project” (Appendix A).

The Leadership Efficacy Scale was included in the web-based December 2005 pilot test at the University of Maryland, and after the pilot test, researchers used factor analysis to determine that each of the items should be preserved within the final version of the MSL-SS. The Leadership Efficacy Scale was used twice in the original MSL instrumentation, as a pre-test for students’ leadership self-efficacy prior to college and as a post-test measure of their current leadership efficacy during college. This scale was found to be reliable in both the pilot study (pre-test (.81) and post-test (.86)) and in the final MSL study of all respondents during the 2006 spring semester (pre-test (.89) and

post-test (.88)). For this study, the scale was found to be reliable for the population (pre-test (.88) and post-test (.89)).

Procedures and Data Collection

In October 2005, the MSL research team research team was granted approval from the University of Maryland's Institutional Review Board (IRB) to conduct the national study (Appendix B). The IRB approval was then sent to each of the study's liaisons at the participating institutions to gain IRB approval from their respective campuses. A statistical firm, Survey Science Group (SSG), was responsible for the data collection and data management. All self-reported student data were collected during the 2006 spring semester, specifically between the months of February through April. Individual institutions had different three-week data collection periods in order to avoid school breaks, holidays or other institutional assessment projects in progress.

Since the survey was web-based, students were sent a request to participate via e-mail. Within the e-mail's text, participants were provided a link that directed them to the survey's secure website. Each participant was identified by a randomly-generated participant number, and once participants opened the survey link, that number was connected to their survey response. Before students could begin responding to the survey, they were provided with the study's confidentiality statement and were required to complete an informed consent form (Appendix C). The researchers followed strict measures to ensure that the student's identifying information could not be linked to his or her response by storing the survey responses and identifying information in two separate locations.

After the initial e-mail request, students were sent up to three reminders via e-mail during the following three weeks. Individual institutions had different three-week data collection periods in order to avoid school breaks, holidays or other institutional assessment projects in progress. Upon survey completion, students were no longer sent additional reminder e-mails. Students who completed the survey were entered to win one of seven national prizes; additionally, some institutions offered campus-based incentives for their students who completed the survey (e.g., iPods and movie tickets). On average, students were able to complete the entire instrument within 20 minutes.

Data Management and Data Analysis

Upon approval from the Institutional Research Board (IRB) at the University of Maryland – College Park, the researcher used the entire data set of undergraduate students who self-identified a learning disability on the MSL-SS and completed at least 90% of the instrument. After cleaning the data of students who did not complete 90% of the survey, graduate students, or any other groups that are too small to study (e.g., Native American students), descriptive statistics were run to see how representative the sample is compared to the national data on college students with a learning disability (i.e., gender, race, age, socioeconomic status). This could reveal limitations of the research's ability to be generalized to the full population of college students with a learning disability. Then, the researcher tested the reliability of the Leadership Efficacy Scale for the students with learning disabilities sub-sample using Cronbach alpha. Since scales are not always reliable for every population, it is important to ensure reliability of this scale for college students with a learning disability before beginning the multiple regression analysis. The leadership efficacy scale which is comprised of four items was reliable with

an alpha of .88 (pre-test) and .89 (post-test); in fact, these Cronbach alphas are quite high (Pallant, 2007).

Next, tests for multicollinearity among the independent variables were run to ensure that none of the measures are heavily correlated with one another. “Most investigators would probably agree that correlations of $r > .80$ between predictors should be considered very problematic. Correlations of this magnitude might suggest that the two variables largely measure the same construct and that only one, or a combination of the two, be used” (Licht, 1995, pp. 45-46). Multicollinearity testing showed no violation of this assumption of regression analyses. The highest correlation value was observed for two independent variables measuring parental education: “some college or a bachelors degree” and “post-baccalaureate degree” ($r = -0.77$). Since $r < .80$, no variables needed to be collapsed or removed due to significant correlation (Licht, 1995). See Appendix E for all correlation values. The Variable Inflation Factors (VIF) is a measure of intercorrelation of the independent variables and was highest for Carnegie type, between 4.6 and 6.8. However, these values still fall within an acceptable range from 0 to 10 (Kleinbaum, 1988). Since the most extreme values still fall within the acceptable ranges for correlation and VIF, multicollinearity is not violated within the model.

When the leadership self-efficacy scale was determined to be reliable and the independent variables were not highly correlated, the researcher began hierarchical multiple regression analysis by successively entering one block into the equation at a time – first entering the inputs and then the environmental variables. Once all of the blocks were entered, the R^2 for each block, R^2 for the entire regression analysis, Beta, B Sig, and F-tests were reported. See Chapter 4 for complete results.

Regression Variable Entry

Establishing the order of variables entered into blocks is critical to regression analysis. According to Astin's (1991) I-E-O model, independent variables that are most distal to the dependent variable should be entered first, followed by variables that are more proximal to the dependent variable. The last independent variables entered into the model should have the most direct relationship to the dependent variable. Following the conventions of the I-E-O model, student demographic information is entered in the first two blocks: Block 1 includes race/ethnicity, gender, age, and socioeconomic status; and, Block 2 accounts for any other disabilities that the student has indicated other than a learning disability. The next block represents experiences the student had prior to college; Block 3 is pre-college involvement, both on and off-campus. The last of the inputs, Block 4, is the leadership efficacy pre-test which measures the student's sense of leadership self-efficacy prior to college.

As the first environmental block, Carnegie classification, Block 5, accounts for institutional type. Class standing is the second environmental factor entered into the model, Block 6. Next, mentorship is entered as Block 7. The next three blocks involve college experiences and involvement; these blocks are entered after mentorship because the literature suggests that they would have a more direct effect on the outcome of leadership self-efficacy: Block 8 includes off-campus college involvement, Block 9 includes on-campus college involvement, and Block 10 consists of leadership training/education. Campus Climate is entered as the eleventh and final block. Refer to Table 3.5 for the complete I-E-O Model of Leadership Self-Efficacy Outcome.

Table 3.5

I-E-O Model of Leadership Self-Efficacy Outcome

Input	Environment	Outcome
<u>Block 1</u> Race / Ethnicity Gender Age Socio-economic Status	<u>Block 5</u> Carnegie Classification <u>Block 6</u> Class Standing <u>Block 7</u> Mentorship	Leadership Self-Efficacy
<u>Block 2</u> Other Disabilities	<u>Block 8</u> Off-Campus Involvement	
<u>Block 3</u> Off-campus Pre-college Involvement On-campus Pre-college Involvement	<u>Block 9</u> On-Campus Involvement <u>Block 10</u> Leadership Training/Education	
<u>Block 4</u> Leadership Efficacy Pre-test	<u>Block 11</u> Campus Climate	

Hypotheses Testing

The data helped to either reject or fail to reject the null hypotheses. Each of these hypotheses were tested using either the individual or combined blocks of the regression analysis by using the R^2 values for the block or set of blocks. Hypothesis One was the combination of all the inputs of the model, Blocks 1 – 4; Hypothesis Two only included the items from Block 6; Hypothesis Three only included the items from Block 7; Hypothesis Four was the combination of Blocks 8 – 10; and, Hypothesis Five was measured using Block 11. For the null hypotheses to be rejected, the R^2 values must indicate a significant contribution to the variance in the dependent variable, leadership self-efficacy.

Conclusion

This chapter detailed the methodology of this quantitative study to investigate what factors contribute to the development of leadership self-efficacy for college students with a learning disability. The research question and hypotheses, general framework, design of MSL national study, sampling strategy, variables, instrumentation including tests for reliability and validity, procedures and data collection, and data analysis were discussed. The next chapter, Chapter 4, will present this study's results.

CHAPTER 4: FINDINGS

The purpose of this study was to determine what pre-college and college experiences contribute to the development of leadership self-efficacy for college students with a learning disability. First, sample characteristics and demographic characteristics will be discussed. Second, regression analyses and hypotheses testing will be examined. Finally, the chapter will end with a model summary and conclusion.

Sample Characteristics

The sample was selected from the Multi-Institutional Study of Leadership (MSL) data set of 50,378 student respondents. Within that data set, 815 students identified as having a learning disability. Since the dependent variable for this study was leadership self-efficacy, individuals who did not have a valid score on this measure (i.e., missing items) were excluded from the final sample. A total of 718 students had valid scores on the leadership self-efficacy scale. Only one individual identified as Native American/American Indian; that student's data was not included, leaving a final sample size of 717 students.

Borg and Gall (1989) have indicated that 10 to 15 cases should be present for each variable involved in multivariate statistics; therefore, each variable was checked prior to analyses in order to ensure that this minimum was met. All variables met the criterion with the exception of students who identified as American Indian. Since only one student identified as American Indian and race was a variable in the study, this student's data were removed prior to final analyses. Therefore, the final n for this study was 717 students with a learning disability. Due to listwise deletion, some analyses

represent a fewer number of total cases; the percentages represent the total number of cases and therefore may not total 100% for each category.

On the complete leadership efficacy scale from 4 to 16 points, respondents had a mean score of 11.08 (SD=3.09) on the pre-test and 12.10 (SD=2.77) on the post-test. On a four point scale, respondents had a mean score of 2.77 (SD=.77) on the pre-test and 3.03 (SD=0.69) on the post-test for the leadership efficacy outcome variable. These numbers are lower than the general student findings from the national MSL study where students had a mean score of 2.84 on the pre-test and 3.13 (SD = .63) on the post-test (Dugan & Komives, 2007). Overall, the students in this study's sample also had confidence in their leadership efficacy.

Demographic Characteristics

Of the respondents, 61.2% (n=437) were female and 38.8% (n=277) were male. When examining race and ethnicity, 75.7% (n=543) were Caucasian/White; 2.2% (n=16) were Black/African-American; 3.1% (n=22) were Asian American/Pacific Islander; 2.9% (n=21) were Latino/Hispanic; 13.0% (n=93) were Multiracial; and, 3.1% (n=22) did not indicate a race or ethnicity. The average age of the sample was 22.73 years old (SD=6.30).

For parental education, 11.3% (n=81) of respondents' parents had no college education; 37.7% (n=270) had some college experience or a Bachelors degree; 48.4% (n=347) had a Post-Bachelors degree; and, 2.5% (n=18) were unaware of their parents' educational experiences. When asked about parental income, 23.3% (n=167) of respondents indicated a yearly amount less than \$39,999; 11.6% (n=83) of respondents' parents make between \$40,000 and \$74,999 a year; 8.4% (n=60) range between \$75,000

and \$99,999; 30.5% (n=219) make over \$100,000 per year; 9.1% (n=65) selected the option “Rather not say”; and, 17.0% (n=22) did not know. Refer to Table 4.1 for a listing of all the demographic characteristics.

Table 4.2 presents the frequencies and percentages of additional disabilities. For the purposes of this study, a summation of additional disabilities was used for the analyses; however, Table 4.3 provides descriptive information regarding the other types of disabilities that the respondents within the sample indicated. The mean of the summation of additional disabilities was 1.80 (SD=0.32). Therefore, on average, respondents indicated between one and two additional disabilities. Most commonly, 57.9% (n=415) of individuals selected “Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder” and 50.1% (n=359) of individuals selected “Psychiatric/Psychological Condition (e.g., anxiety disorder, major depression).” Compared to other national datasets, these percentages are significantly higher (Henderson 1995, 1999, 2001). This increase is not surprising given the rapid increase in the numbers of college students identifying disabilities (Henderson). Part of this increase may also be due to the fact that other nationally reported information about college students with disabilities primarily comes from Cooperative Institutional Research Program (CIRP) which surveys first-year students. Other studies have commented on the increase of students diagnosed with a disability during college (Kavale & Forness, 1996).

Table 4.1

Demographic Characteristics of Respondents

Respondent Characteristics	N	Percentage
<u>Gender</u>		
Male	277	38.8%
Female	437	61.2%
<u>Race</u>		
Caucasian/White	543	75.7%
Black/African American	16	2.2%
Asian American/Pacific Islander	22	3.1%
Latino/Hispanic	21	2.9%
Multiracial	93	13.0%
Unknown	22	3.1%
<u>Age</u>		
18 to 21 years old	433	60.4%
22 to 25 years old	173	24.1%
26 to 30 years old	47	6.6%
31 to 40 years old	35	4.9%
41 years old or older	26	3.6%
<u>Parental Education</u>		
No college education	81	11.3%
Some college or Bachelors degree	270	37.7%
Post-Bachelors degree	347	48.4%
Unknown	18	2.5%
<u>Parental Income</u>		
Less than \$39,999	167	23.3%
Between \$40,000 and \$74,999	83	11.6%
Between \$75,000 and \$99,999	60	8.4%
Over \$100,000	219	30.5%
Rather not say	65	9.1%
Unknown	17	17.0%

Table 4.2

Frequencies of Summation of Additional Disabilities

Number of Additional Disabilities	N	Percentage
0	80	11.2%
1	225	31.4%
2	228	31.8%
3	103	14.4%
4	33	4.6%
5	10	1.4%
6	8	1.1%
7	1	0.1%
8	2	0.3%

Table 4.3

Frequencies of Other Disabilities

Disability Type	N	Percentage
Deaf/Hard of Hearing	47	6.6%
Blind/Visual Impairment	57	7.9%
Speech/language condition	72	10.0%
Physical or musculoskeletal	47	6.6%
Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder	415	57.9%
Psychiatric/Psychological condition	359	50.1%
Neurological condition	55	7.7%
Medical	110	15.3%
Other	123	17.2%

Regression Analysis

For this study, a significance level of $p < .001$ was established for testing the hypotheses. Although Tables 4.4 and 4.5 indicate p-values of $p < .05$, $p < .01$, and $p < .001$, only p-values less than .001 will be considered statistically significant for the discussion of the results. Significance at other levels should be considered cautiously since the data set is large, but these values can help to provide a deeper understanding of the data and indicate what specific factors contribute to the observed variance. See Table 4.4 for a comprehensive summary of all variables included in the regression. Overall, the results of the regression indicate that pre-college experiences and the college environment explain a significant amount of the variance of leadership self-efficacy, $R^2 = .472$. Table 4.5 consolidates the findings of the model and presents R , R^2 , and the adjusted R^2 of the model. R is the square root of R^2 ; it represents the correlation that exists between the predicted and observed values of leadership efficacy. R^2 is the amount of variance in the dependent variable that is explained by the independent variable, and adjusted R^2 accounts for the variance that may occur randomly as independent variables are entered into the table. The closer the adjusted R^2 is to R^2 , the stronger the model.

Table 4.4

Predictors for Leadership Self-Efficacy

<i>Block/Step/Variable (N=669)</i>	<i>R²</i>	<i>R² change</i>	<i>F Change</i>	<i>Beta</i>	<i>βsig</i>	<i>Sig.</i>
1. Demographic Information	.063	.063	2.903			***
<i>Race/Ethnicity</i> (referent: White/Caucasian)						
African-American				.033	.645	
Asian American				-.097	-1.1567	***
Latino				-.046	-.810	
Multi Racial				.023	.189	
Not Included				.020	.321	
<i>Gender</i>						
Female				.019	.106	
<i>Age</i>						
Age				.002	-.001	
<i>Parental Education</i>						
Unknown				-.079	-1.517	*
Some College or Bachelor's Degree				-.126	-.711	*
Post-Baccalaureate Degree				-.173	-.957	**
<i>Parental Income</i> (referent: Below \$40,000)						
Between \$40,000 and \$74,999				.005	.044	
Between \$75,000 and \$99,999				.000	.000	
Over \$100,000				.051	.304	
Rather Not Say				-.005	-.406	
Unknown				.005	.037	
2. Other Disabilities	.063	.001	.558			
<i>Sum of other disabilities</i>						
Sum of other disabilities				.003	.006	
3. Pre-College Involvement	.121	.058	10.684			***
<i>Off-campus involvement</i>						
Performing volunteer work				-.019	-.056	
Participating in comm. organizations				.021	.053	
<i>On-campus involvement</i>						
Participating in student groups				-.048	-.128	
Participating in varsity sports				.059	.128	
4. Leadership Efficacy Pre-Test	.353	.231	231.116			***
<i>Leadership efficacy pre-test</i>						
Leadership efficacy pre-test				.493	.440	***

<i>Block/Step/Variable (N=669)</i>	<i>R²</i>	<i>R² change</i>	<i>F Change</i>	<i>Beta</i>	<i>βsig</i>	<i>Sig.</i>
5. Carnegie Classification	.357	.005	1.223			
<i>Carnegie Classification</i>						
Research Extensive				.058	.333	
Research Intensive				.058	.414	
Masters				.081	.484	
Bachelors				.046	.415	
6. Class Standing	.399	.041	16.665			***
<i>Class Standing</i>						
Sophomores				-.023	-.156	
Juniors				.016	.097	
Seniors				.145	.884	**
7. Mentorship	.417	.018	3.995			**
<i>Mentorship</i>						
Student Affairs				-.049	-.128	
Faculty				.029	.079	
Employer				-.031	-.084	
Community Member				.008	.022	
Other Student				.064	.162	
8. Off-Campus College Involvement	.433	.016	5.980			***
<i>Employment</i>						
Off-Campus employment				-.109	-.637	***
<i>Community Service</i>						
Community service in college				-.012	-.069	
<i>Leadership Position</i>						
Off-Campus leadership position				.023	.054	
9. On-Campus College Involvement	.453	.019	7.464			***
<i>Employment</i>						
On-Campus employment				.014	.092	
<i>Involvement</i>						
Breadth of involvement				.032	.029	
<i>Leadership Position</i>						
On-Campus leadership position				.124	.251	**

<i>Block/Step/Variable (N=669)</i>	<i>R²</i>	<i>R² change</i>	<i>F Change</i>	<i>Beta</i>	<i>βsig</i>	<i>Sig.</i>
10. Leadership Training / Education	.458	.005	1.953			
<i>Length of Training / Education</i>						
Short				.016	.104	
Medium				.071	.462	
Long				.067	.447	
11. Campus Climate	.472	.015	17.401			***
<i>Campus Climate</i>						
Campus climate				.133	.266	***

p*<.05, *p*<.01, ****p*<.001

Table 4.5

Model Summary

Block/Description (N=669)	R	R Square	Adjusted R Square	R Square Change	F Change	Sig F Change
1. Demographic Information	.250	.063	.041	.063	2.903	.000***
2. Other Disabilities	.252	.063	.040	.001	.558	.455
3. Pre-College Involvement	.348	.121	.094	.058	10.684	.000***
4. Leadership Efficacy Pre-Test	.594	.353	.332	.231	231.116	.000***
5. Carnegie Classification	.598	.357	.332	.005	1.223	.300
6. Class Standing	.631	.399	.372	.041	14.665	.000***
7. Mentorship	.646	.417	.387	.018	3.955	.002**
8. Off-Campus College Involvement	.658	.433	.401	.016	5.980	.001***
9. On-Campus College Involvement	.673	.453	.419	.019	7.464	.000***
10. Leadership Training / Education	.676	.458	.421	.005	1.953	.120
11. Campus Climate	.687	.472	.436	.015	17.401	.000***

p*<.05, *p*<.01, ****p*<.001

Hypothesis 1

The first null hypothesis states that the combination of student characteristics, pre-college involvement, and pre-college measures of leadership self-efficacy does not significantly contribute to the explained variance. This hypothesis incorporates all the inputs of the model, and the results of the regression reject the null. The input variables accounted for 35.3% of the variance and the first four blocks test this hypothesis and, with the exception of Block 2 – Other Disabilities, explained a significant portion of the variance.

Block 1: Demographic Information

As a block, Demographic Information, which includes race/ethnicity, gender, age, parental education, and parental income, explained a significant amount of the variance. Within this block, only one variable, Asian American, had a p-value less than .001. Since the reference group for race/ethnicity was White students and the beta weight for Asian Americans was negative, Asian American students in this sample are significantly less likely than their White peers to have higher leadership self-efficacy. Although parental education showed moderate to low predictive significance, the remaining variables, including parental education, did not prove to be significant predictors for the model when considered independently. The first block accounted for 6.3% of the variance.

Block 2: Other Disabilities

When the sum of additional disabilities was included in the regression model, no significant contribution to the variance was observed. Since this block only included one variable, the variable itself was also not a significant predictor variable. Only 0.1% of the variance was explained by other disabilities.

Block 3: Pre-College Involvement

At 5.8%, Block 3 contributed a significant amount of the variance explained by the model. This block includes off-campus and on-campus involvement. The off-campus factors of volunteer work and participation in community organizations did not prove to be significant contributors to the model nor did the on-campus factors of participating in student groups or varsity sports.

Block 4: Leadership Efficacy Pre-Test

Compared to the other blocks in the model, Block 4 explained the most variance, 23.1%. Block 4 contained one variable, the pre-test for leadership efficacy; therefore, the leadership efficacy pre-test scale was a significant positive predictor of the dependent variable. A higher score on the leadership efficacy pre-test predicts a higher score on the dependent variable of leadership self efficacy.

Hypothesis 2

Also stated in the null, the second hypothesis states that class standing does not contribute to a significant difference in a student's leadership self-efficacy. Like hypothesis one, the results of the regression reject the second null hypothesis. To test this hypothesis, only Block 6 was used.

Block 6: Class Standing

According to the model, Block 6 explained 4.1% of the model's variance. Freshman respondents were used as the reference group, and no individual variables (i.e., sophomores, juniors, or seniors) were significant at the $p < .001$ level. Although seniors only showed a moderate predictive value ($p < .01$), the combination of the class standing variables proved to collectively comprise a significant amount of the explained variance.

Hypothesis 3

Hypothesis 3, also stated in the null, asserts that mentorship during college does not contribute to the model's explained variance. Even though mentorship was significant at the $p < .01$ level, at the $p < .001$ level, the results fail to reject the null hypothesis. Therefore, mentorship does not explain a significant proportion of the variance; this block only accounts for 1.8% of the variance.

Block 7: Mentorship

Block 7 includes mentorship from student affairs professionals, faculty, employers, community members, and other students. For each independent variable, no significance was observed. Therefore, mentoring relationships are not significant predictors of developing leadership self-efficacy for this sample of college students with a learning disability. Upon further analysis of the frequencies for mentoring, this sample was more frequently mentored by faculty and other students and less frequently mentored by student affairs professionals, employers, and community members. More importantly, a large number of respondents indicated that they have never been mentored by individuals within many of the categories. Table 4.6 provides the frequencies for each mentoring relationship.

Table 4.6

Mentoring Frequencies

	Never	One Time	Several Times	Many Times
Student Affairs Staff	317	128	198	73
Faculty	173	145	284	115
Employers	350	137	167	62
Community Members	424	96	158	39
Other Students	178	103	279	157

Hypothesis 4

For Hypothesis 4, college involvement and leadership training/education were not hypothesized to contribute to the variance observed in the model. The results from Blocks 8, 9, and 10 were used to test the fourth hypothesis and the blocks collectively account for 4.0% of the variance. Blocks 8 and 9, Off-Campus College Involvement and On-Campus College Involvement respectively, independently account for a significant proportion of the variance while Block 10, Leadership Training/Education, does not. The results of the regression reject this null hypothesis.

Block 8: Off-Campus College Involvement

Involvement off campus, Block 8, combined variables of employment, community service, and leadership positions. As a block, off-campus college involvement explained a significant proportion of the variance. Off-campus employment

was a negative, significant predictor for leadership self-efficacy. Thus, students in the sample who were employed off-campus were significantly more likely to have a lower score on the dependent variable of leadership self-efficacy. Both community service and off-campus leadership position did not have significant predictive abilities within the model.

Block 9: On-Campus College Involvement

At 1.9%, On-Campus College Involvement explained a significant proportion of the variance. Within this block, on-campus employment was not proven to be a significant predictor. Additionally, breadth of involvement, measured by the total number of clubs and organization the respondent indicated, did not have significant predictive ability. Lastly, on-campus leadership positions had a moderate predictive value ($p < .01$), but it also did not meet the test for predictive significance.

Block 10: Leadership Training/Education

Leadership Training/Education only explained 0.5% of the variance and did not explain a significant proportion of the model's variance. This block measured the length of training/education programs (i.e., short, medium, and long). None of the independent variables were shown to be statistically significant within the regression. After examining the frequencies of these variables, 149 respondents indicated involvement in short-term experiences, 165 respondents indicated involvement in medium-term experiences, and 167 respondents indicated involvement in long-term experiences. Only 235 respondents indicated no involvement in these experiences.

Hypothesis Five

The final null hypothesis stated that campus climate did not significantly contribute to the variance of the model. At the $p < .001$ level, the eleventh and final block, campus climate, did account for a significant amount of the explained variance. This hypothesis was tested using one independent variable, campus climate, and was rejected based on the regression's results.

Block 11: Campus Climate

Block 11 accounted for 1.5% of the model's variance using only one independent variable which measured campus climate on a 7-point Likert scale. On a seven point scale, the mean score of respondents was 4.96 (SD=1.38). As the last independent variable entered in the model, campus climate was able to explain a significant proportion of the variance even after the preceding variables claimed 45.8% of the explained variance. Since the block explained a significant amount of the variance and only included one independent variable, the independent variable was also a significant predictor within the model at the $p < .001$ level.

Model Summary

Since this model has a large number of independent variables, it is more likely to have included excess variables that decrease the entire model's predictive value (Licht, 1995). This can be tested by comparing the R^2 value with the Adjusted R^2 value. The closer these two values, the less likely extraneous independent variables were included in the model. The R^2 value and the Adjusted R^2 value of the model were .472 and .436, respectively. These relatively close values suggest that the model lacks a significant amount of irrelevant independent variables.

The only block not included in the tested hypotheses was block 5, Carnegie classification. The literature did not suggest that Carnegie type had a significant effect on the population or construct being considered for this study. This block was used to control for institutional type, and it did not account for a significant amount of the explained variance.

Overall, the model explained 47.2% of the sample's variance in leadership self-efficacy. Significant negative predictors include students who are Asian American and students who are employed off-campus. Significant positive predictors include the leadership efficacy pre-test and a positive campus climate. Other factors that showed moderate to minimal predictive value but did not meet the study's $p\text{-value} < .001$ criterion include parental education, students who are seniors, and students who hold on-campus leadership positions.

Multiple blocks explained a significant proportion of the model's variance. Those blocks include: (a) Demographic Information; (b) Pre-College Involvement; (c) Leadership Efficacy Pre-Test; (d) Class Standing; (e) Off-Campus College Involvement; (f) On-Campus College Involvement; and (g) Campus Climate. Block 7: Mentorship showed moderate significance while Block 2: Other Disabilities, Block 5: Carnegie Classification, and Block 10: Leadership Training/Education did not prove to explain a significant portion of the observed variance.

Conclusion

Chapter Four offered a comprehensive review of the study's findings. The chapter began with a review of the sample characteristics, demographic characteristics and ended with a discussion of the regression analyses, hypotheses testing, and model summary.

The fifth and final chapter will discuss the major findings of the study and offer suggestions for future research.

CHAPTER 5: DISCUSSION

This study examined what pre-college and college factors contributed to the development of leadership self-efficacy for college students with a learning disability. Based on the current literature, five null hypotheses were developed and tested using hierarchical regression statistical analysis. This chapter will examine the implications of the findings from hypotheses testing, describe the limitations inherent in the design of the research, and discuss the study's overall findings as they relate to research and practice.

Summary of Findings

Five hypotheses emerged from examination and synthesis of the literature on college students with learning disabilities and their leadership self-efficacy. These hypotheses were assessed using a combination of the study's 43 independent variables which were further organized into 11 blocks within the regression. Of the 11 blocks of variables present in the study, seven were found to explain a significant proportion of the observed variance at a p-level of less than .001. In total, the pre-college and college factors explored in this study explained 47.2% of the sample's leadership efficacy, the dependent variable of the study. These factors rejected four of the study's five hypotheses and offer novel findings not found in the existing literature.

Descriptive Findings

Females (61.2%, $n = 437$) were overrepresented in the sample compared to males (38.8%, $n = 277$); these results mirror the Multi-Institutional Study of Leadership (MSL) data from which this sample was drawn. In the MSL national study, "females (62%, $n = 30,960$) were slightly overrepresented compared to males (38%, $n = 19,183$) (Dugan & Komives, 2007, p. 11). These findings contradict a considerable body of literature that

found significantly more men diagnosed with a learning disability (Hampton & Mason, 2003; Levine & Nourse, 1998; Siegel & Smythe, 2005; Vogel, 1990). In her review of the Cooperative Institutional Research Program (CIRP) data from 2000, Henderson (2001) observed the same pattern, 43.2% of men self-identified a learning disability compared to 37.4% of women. This discrepancy may be a result of the overrepresentation of females within the sample or may suggest a trend of more women identifying a learning disability. Since the information is self-reported, the data capture an individual's perception about disability rather than a medical diagnosis. Therefore, even if more men are medically diagnosed with a learning disability, it is possible that, compared to men, more women actually feel that they have a learning disability.

With a mean age of 22.73 years old, the respondents of this sample were older than the respondents of the MSL national study whose mean age was 21 years old (Dugan & Komives, 2007). College students with a learning disability are generally older than their peers and take longer to complete an undergraduate degree (Henderson 1999, 2001; Wolanin & Steele, 2004). This suggests that students with a learning disability could have longer exposure to the environmental variables measured in this study, which could, in turn, have a more profound impact on their development of leadership efficacy.

According to race and ethnicity, the sample was primarily comprised of White/Caucasian respondents (75.7%, $n = 543$) with students identifying as Multiracial (13.0%, $n = 93$) as the next largest group. Students who identified as Asian American/Pacific Islander (3.1%, $n = 22$), Latino/Hispanic (2.9%, $n = 21$), African American/Black (2.2%, $n = 16$), and Unknown (3.1%, $n = 22$) made up the remainder of the sample. These findings are not uncommon when compared to other research that

shows that students with a learning disability are more likely to be White/Caucasian (Henderson 1999, 2001; Warner, Dede, Garvan, & Conway, 2002). The Multiracial category presented unique findings that could be explored further in future studies. Since the sample was 13.0% Multiracial but the combination of races was not considered as a part of the model, more in-depth analysis could reveal possible significance according to a student's specific Multiracial identification (i.e., the different combinations of race categories).

For this study, socioeconomic status was measured using a combination of parental education and parental income; this combination of variables is frequently used in higher education as an approximated measure of socioeconomic status (Terenzini, Cabrera, & Bernal, 2001). The first variable, parental education, showed that 86.1% of the sample indicated that one parent had at least some degree of a college education. In fact, 48.4% of the sample indicated a parent with Post-Bachelor's degree. According to household income, 30.5% of the respondents have a household income that exceeds \$100,000. The next largest income group fell at the other end of the income spectrum for the study; 23.3% of respondents live in households with incomes less than \$40,000 per year. This distinction at the extremes has been explained by prior studies suggesting that individuals from low household incomes do not generally have access to the best education or resources while individuals at the top of the income brackets have the financial resources necessary to afford the expensive testing needed for the diagnosis of a learning disability (Blair & Scott, 2002; Kaufman, Cooper, & McGee, 1997; O'Connor & Spreen, 1988).

Although this study only measured the total number of additional disabilities, the descriptive findings about additional disability types present novel findings when compared to existing literature and existing data sets. Most notably, 50.1% of students who identified a learning disability also identified a psychiatric/psychological disability, and 57.9% indicated Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder. Although the latter of these two categories is frequently associated with learning disabilities, the percentage of respondents is relatively high (Vogel, 1990).

The fact that half of the sample also indicated a psychiatric/psychological condition was an unexpected finding within the data. On average, respondents indicated an average of 1.8 additional disabilities other than their learning disability. This finding may be attributed to some of the questions asking about conditions or impairments, not disabilities. Therefore, this figure may not represent the total number of *disabilities* that an individual has. The complexities of the intersections of these additional disabilities are not investigated within this study, but future research could enhance understanding of how these different disabilities affect one another and a student's leadership efficacy.

Hypothesis 1

For hypothesis one, the inputs of the regression model were considered. Collectively, the four input blocks rejected the null hypothesis, but more importantly, a few of the independent variables emerged as significant predictors of leadership efficacy. Within the race/ethnicity variables, students who identified as Asian American/Pacific Islander had a significant, negative predictive effect at $p < .001$. This specific finding has been present in other research on leadership development (Komives & Dugan, 2007; Liu & Sedlacek, 1998), but has recently been attributed in part to this population's avoidance

of extreme response options (Wang, Hempton, Dugan, & Komives, 2007). Compared to their White peers, Asian American students avoid extreme responses thus negatively bias their comparative results. For this study's 16-point measure of leadership efficacy, Asian American students had a mean score of 9.59 (SD=2.59) on the pre-test and a mean score of 9.68 (SD=3.18). The standard deviations for this group are similar to the full sample of students with a learning disability; therefore, Wang and colleagues findings may not apply to this study. These findings may suggest that Asian American students with a learning disability do in fact have lower leadership efficacy than their other peers with a learning disability. Although this finding is significant at the most conservative p-level, it should be interpreted within this appropriate context.

Another set of negative predictors appeared within the variables measuring socioeconomic status. Although parental education did not meet the level of significance needed for this study, it did prove to be significant at more moderate p-levels of .01 and .05. Since the sample size was relatively large, moderately significant findings should be considered with caution. However, the negative observed significance should be explored in future studies to see if it truly is a significant predictor of leadership self-efficacy for this population of students. This study's findings would suggest that the more education students' parents have, the lower their level of leadership efficacy. These counterintuitive findings may be a result of higher parental expectations for their children with a learning disability. Since the parents were able to be successful in college, they may expect the same, if not more, from their student. This pressure may translate to a lower sense of self confidence and self esteem if the student is unable to meet these expectations. On the other hand, these findings may indicate that parents with a college education are more

involved in their children's education, not allowing them to develop the efficacy to know who to function without their support and guidance.

The last significant predictor within the input variables was the pre-test for leadership efficacy. At 23.1%, the fourth block explained the greatest proportion of the variance. Since this block only contained one variable, the pre-test for leadership efficacy was a significantly strong predictor for the outcome of leadership efficacy. These findings are not surprising, but they do help to control the variance within the model's environmental variables. Without this predictor, the model would likely overinflate the variance observed in the environmental variables, suggesting that certain aspects of the college environment have a larger effect on developing leadership efficacy than they actually do. Hence, students with a learning disability who enter college with a strong sense of leadership efficacy will have higher scores on the leadership efficacy outcome. For this study, students with a learning disability enter college with a relatively strong sense of leadership efficacy ($m=2.77$, $SD=.77$). Thus, their scores of leadership efficacy on the post test ($m=3.03$, $SD=.69$) are mostly attributed to factors prior to the college environment.

Hypothesis 2

The second null hypothesis was also rejected by the results of the regression. As a block, class standing explained 4.1% of the study's variance which was significant to the study. Even so, none of the independent variables were significant predictors for the outcome variable. Although seniors had a moderately significant predictive value, this variable was not significant based on the study's criteria. Like the findings from the pre-test for leadership efficacy, these results are also not unexpected; students who are older

have had more of an opportunity for experiences that could further develop their efficacy for leadership. Previous studies also show that college students with a learning disability are more likely to take longer to complete an undergraduate degree (Henderson 1999, 2001), so the moderate effects that were observed for seniors could be a result of students who identified this category may have been in college four, five, or more years. From the data, there is no way to tell the actual number of years a student has been exposed to the variables in the college environment which could possibly have an impact on these findings.

Hypothesis 3

Hypothesis three was the only hypothesis that did not prove to be significant. The entire block was moderately significant ($p < .01$), and none of the independent variable were significant predictors in the model. Bandura (1995) discusses the importance of vicarious experiences and verbal persuasion on the outcome of efficacy development. Vicarious experiences have been explained to be more powerful when the role model has relatively similar characteristics (Bandura). This becomes difficult to assess when characteristics like a learning disability are not visible (Bessell & Moss, 2007; Phemister & Crewe, 2007; Scrambler, 2004). The lack of significant findings for this hypothesis could be attributed to (a) the hidden nature of learning disabilities, (b) extent to which they are receiving frequent mentorship on campus, or (c) the mentorship that they are receiving may not be intended to develop leadership efficacy.

The variables used to measure this hypothesis focus on specific types of mentorship (i.e., student affairs professionals, faculty, employers, community members, and other students); the intended outcomes of mentorship (e.g., career development,

academic success, or personal) are not distinguished by the study's data. If mentors are focusing on more basic needs of students (e.g., navigating the college bureaucracy, completing mandatory academic requirements), they may not be engaging students in discussions of leadership development. As the descriptive statistics indicated in Table 4.6, there is generally a lack of mentorship occurring for students with a learning disability. This may be due to decreased self-advocacy and help-seeking behaviors for students with a learning disability (Brinkerhoff, 1994; Hadley, 2006; Skinner, 1998); they may not be reaching out and developing these relationships on campus. Future research should explore effective mentorship strategies for students with learning disabilities to develop a stronger sense of leadership efficacy.

Hypothesis 4

Blocks eight, nine, and ten collectively rejected the fourth null hypothesis that college involvement and leadership training/education do not contribute to the model's variance. Within each of these blocks, only one significant predictor was observed. Off-campus employment, a significantly negative predictor of the model, suggests that students with a learning disability who work off-campus have a lower sense of leadership efficacy. Astin (1993) showed that off-campus employment had a negative effect on involvement during college. If students who work off-campus are less likely to be involved on-campus, they may not be engaging in mastery experiences (e.g., involvement in organizations, leadership experiences, community service) that Bandura (1995) emphasizes as a critical component of efficacy development. Thus, a lower score for leadership efficacy would be observed in the study.

Other predictors for this hypothesis did not prove to be significant. On-campus leadership position was moderately significant at $p < .01$; this warrants additional studies to assess whether leadership positions matter for the development of leadership efficacy for college students with a learning disability. Interestingly, the variables measuring leadership training/education were not found to be significant, and the block, as a whole, did not explain a significant proportion of the variance. The three independent variables used to measure leadership training/education were categorical with “yes” or “no” options. If a larger range of choices per variable was used to measure this block (i.e., a larger number of response options per each length of training), the study could measure a more precise degree of participation for these currently dichotomous variables. Although this data exists within the MSL national data set, these variables were trimmed down to reduce the total number of independent variables in the model.

Hypothesis 5

Campus climate was the last significant block that rejected the fifth null hypothesis. As a positive predictor variable, campus climate was also significant at $p < .001$. Therefore, campus climate matters for students with a learning disability who are developing their leadership self-efficacy. The more positive the climate, the more likely a student with a learning disability is to have a higher sense of leadership efficacy. With a mean of 4.96 above the midpoint of the scale, students with a learning disability generally have a positive perception of their campus climate.

Many researchers have shown the effects of campus climate on students' college experiences (Cabrera, Nora, Terenzini, Pascarella, Serra Hagedorn, 1999; Hurtado, Milem, Clayton-Pedersen, Allen, & Milem, 1998; Malaney, Williams, & Gellar, 1997),

and the results of this study highlight the influence that campus climate has on college students with a learning disability. Since the measure of campus climate is only one item, future research could explore specific aspects of campus climate (e.g., faculty support, access to resources, social interaction) and how they relate to this population's development of leadership efficacy.

Limitations

There are a few limitations to note for this study. As noted earlier, since the data used in this study are cross-sectional and not longitudinal, it is not a true I-E-O design (Astin, 1991). The pre-test for leadership efficacy and other input measures asked students to think about themselves prior to college rather than directly measuring the inputs while they are in high school. Another limitation of the design is that regression cannot prove cause and effect; it only shows if independent variables contribute to the variance in the dependent variable. Therefore the results of this study cannot indicate items like positive campus climate or leadership positions cause a student's higher sense of leadership self-efficacy.

Other limitations of the study stemmed from the lack of literature specific to both the population of college students with a learning disability and the construct of leadership self-efficacy. Due to this gap in the literature, this study was rather exploratory with little direct evidence supporting every one of the selected variables. Although the results from this study produced original findings not found in the current literature, additional research will need to be conducted in order to verify such findings.

As mentioned previously, the study examined any student who self-identified a learning disability. Self-identification of a learning disability is not necessarily a

limitation of this study; instead, it is used as a framework and context for understanding the unique nature of this population. Due to this macro-level perspective of the population, the results of the research may not necessarily be true if applied to specific types of learning disability.

Finally, *ex post facto* design limits the ability to obtain the specific information that the researcher would like to measure. With this study, no data were collected on the time of diagnosis for the learning disability. Some research has shown that the time of diagnosis is important to the student's development (Troiano, 2003), while other studies have suggested that a student's class standing is a more important measure of development (Giovingo, Proctor, & Prevatt, 2005; Proctor & Prevatt, 2003). Since the original MSL study only measured class standing, there is no way to resolve this discrepancy within the literature by integrating it into this study. Additionally, the item used to assess disability on the MSL instrument contained a gateway question before respondents were able to select for a learning disability. This could have limited the number of respondents who selected this variable.

Implications for Practice

This study found a number of pre-college and college experiences that affect the development for leadership efficacy, and campus educators have the opportunity to create more intentional, productive environments for developing leadership efficacy for college students with a learning disability. Bandura (1995) has identified four sources that influence efficacy development, and this section will explore each of these to identify ways to shape professional practice for this population

Mastery Experiences

This study showed that although on-campus and off-campus involvement mattered for leadership efficacy development, only one variable was a strong predictor of efficacy. Since off-campus employment had a negative value in the model, educators could consider finding better ways of getting students with learning disabilities connected with employment on-campus. This could be accomplished in a variety of ways (e.g., marketing, career counseling, and sharing this information with staff working with disability support services).

Other mastery experiences in the environmental variables did not prove to be significant and may suggest that such experiences are not seen by this population as accessible. If college students with a learning disability generally perceive their themselves as less capable than their peers without a disability (Frymier & Wanzer, 2003; Trainor, 2007), then they may not think that they are as capable of participating in the mastery experiences available to them during college. One specific suggestion may be to create specific leadership development programs and opportunities for students with learning disabilities, or any disability for that matter. This could potentially make students more comfortable to participate if they are not compared to their peers which they see as more capable.

Vicarious Experiences

Identity-based leadership programs targeting college students with a learning disability could also help to expand their opportunities for vicarious experiences. If college students with a learning disability were more frequently seeing other students who identified with a learning disability in visible leadership roles on campus, then,

according to Bandura (1995), they would be more likely to see themselves as capable of engaging in leadership experiences. Another opportunity that practitioners could explore would be connecting peers with a higher observed sense of leadership efficacy with students who demonstrate lower levels of leadership efficacy. Again, if students are able to see their peers successfully accomplish difficult tasks, they may feel more confident in their ability to tackle challenges that they may have once avoided.

Verbal Persuasion

Verbal affirmation is critical for developing a strong sense of leadership efficacy for any student, and it may be particularly powerful for students with a learning disability. Since learning disabilities are not visible, a practitioner may never know whether a student identifies a learning disability. Therefore, practitioners working to enhance leadership efficacy should always consider how to keep their language and encouragement positive and inclusive of all students. How they console students when those students were not successful with a task or how they encourage hesitant students to attempt a new role within the organization can strengthen students perception of themselves and therefore enhance their efficacy to engage in future leadership activities. Positive verbal affirmation can provide a safer place for students to take risks and tackle a previously negative physiological or emotional state.

Physiological and Emotional States

Lastly, the physiological and emotional state of students can severely impact their leadership efficacy. For instance, students may be nervous to give a committee report in front of the entire organization. Their nervousness and anxiety may translate into fear and cause the student to feel incapable of performing the task. For students with a learning

disability, this fear may have been reinforced before and during college, and it may alter how they feel about their ability to ever perform such a task. In helping a student identify and understand the root of these insecurities or irrational beliefs, educators have the capacity to help students shape a more healthy emotional state of mind. Regardless of whether a student has a learning disability, educators who pay attention to these students' insecurities and provide positive interventions help to eliminate unnecessary mental barriers that were previously seen as immobilizing by the students.

Professional Responsibility

At the most basic level, this study's implications for practice highlights the need for educators to remain aware that the college environment has an incredible potential to positively shape students' efficacy for leadership, especially since students with a learning disability were present on all 52 campuses involved in the national MSL study. Leadership education and training available for students with a learning disability are not currently contributing to students' growth in leadership efficacy. The question remains of how to effectively shape these programs and services to effectively meet the needs of these students. This study illuminates the fact that certain variables within the college environment explain a significant proportion of the model's observed variance, but a larger percent of the variance is still left unexplained. Higher education professionals have a responsibility to find better ways to meet the developmental needs of college students with a learning disability.

Suggestions for Future Research

There are several possibilities for future research as a result of this study. Although the model was developed based on the literature for college students with a

learning disability, the model, or components of it, could offer significant findings if applied to students with other types of disabilities. Leadership self-efficacy has not been considerably explored for students with any type of disability, and exploration of the factors that contribute to leadership efficacy for all disability types could clarify factors that are general for any student with a disability or factors that are specific to a type of disability.

Qualitative studies of students with a learning disability with high leadership efficacy could explore the environmental characteristics and experiences that encouraged this development. Similarly, a qualitative study could explore the environmental characteristics and experiences for college students with a learning disability who display low leadership efficacy. Since this study was an *ex post facto* design, it eliminated the ability to integrate new variables to consider. Qualitative research allows an iterative research process where new variables emerge throughout the duration of the research.

Students with multiple disabilities are another population often not considered within the literature. The results of this study indicate a large proportion of the sample identify themselves as persons with multiple disabilities. Although an average of 1.8 additional disabilities were selected for this study's sample, more research could explain how these multiple disabilities intersect and influence one another. This research would be particularly interesting since the model did not show significance when the sum of additional disabilities was entered into the model. Future research should separate the different types of disability and examine the effects that relationships of disability types have on one another. This is particularly important since over half of this study's sample also indicated a psychological/psychiatric condition. Future studies could examine if

students who also identify a psychological/psychiatric condition generally have a lower sense of leadership efficacy because of that specific condition. Such a finding would help to explain more of the variance than is indicated in this study's model.

Mentorship did not prove to be significant at the study's $p < .001$ level. Although moderate significance was observed, more research could explore the outcomes that mentorship has on college students with learning disabilities and their development. Since mentorship did not contribute to the outcome of leadership efficacy development, does it contribute to other outcomes for this population?

Lastly, institutional characteristics were considered within the study but could also be explored in more depth to provide deeper meaning. Campus climate was a significant predictor of the model while Carnegie type was not. Further analyses could help provide more clarity explaining the effects that different types of institutions have on college students with a learning disability.

Conclusion

This study addressed a noticeable gap within the literature for leadership efficacy and college students with a learning disability. Using multiple regression, this study's model explained 47.2% of the variance in the outcome of leadership efficacy and illuminated a number of positive and negative predictors of the outcome. Although the findings contribute to the scholarship of a relatively unexplored area of research, future research is needed in order to strengthen our understanding of how leadership efficacy develops for specific populations of students. With this knowledge, practitioners can shape their programs and services in ways that effectively reach *every* student on campus.

APPENDIX A: Multi-Institutional Study of Leadership Student Survey

NOTE:

This is a paper and pencil version of what will be presented as an on-line web survey. Skip patterns will automatically take the respondent to the appropriate section. Shaded sections/ items will be used in split samples and will not be asked of all participants.

COLLEGE INFORMATION

1. Did you begin college at your current institution or elsewhere? (Choose One)

- ☐ Started here
- ☐ Started elsewhere

2. Thinking about this academic term, how would you characterize your enrollment? (Choose One)

- ☐ Full-Time
- ☐ Less than Full-Time

3. What is your current class level? (Choose One)

- ☐ First year/freshman
- ☐ Sophomore
- ☐ Junior
- ☐ Senior
- ☐ Graduate student
- ☐ Other

4. Are you currently working OFF CAMPUS?

(Circle one)

YES NO

If NO skip to #5

4a. Approximately how many hours do you work off campus in a typical 7 day week?

4b. In your primary off campus position, how frequently do you: (Circle one for each item)

1 = Never

3 = Often

2 = Sometimes

4 = Very Often

Perform repetitive tasks 1 2 3 4

Consider options before making decisions 1 2 3 4

Perform structured tasks 1 2 3 4

Have the authority to change the way some

things are done 1 2 3 4

Coordinate the work of others 1 2 3 4

Work with others on a team 1 2 3 4

5. Are you currently working ON CAMPUS?

(Circle one)

YES NO

if NO skip to #6

5a. Approximately how many hours do you work on campus in a typical 7 day week?

5b. In your primary position, how frequently do you:

(Circle one for each item)

1 = Never

3 = Often

2 = Sometimes

4 = Very Often

Perform repetitive tasks 1 2 3 4

Consider options before making decisions 1 2 3 4

Perform structured tasks 1 2 3 4

Have the authority to change the way some
things are done 1 2 3 4

Coordinate the work of others 1 2 3 4

Work with others on a team 1 2 3 4

**6. In an average academic term, do you engage in
any community service?**

YES NO

if NO skip to #7

In an average academic term, approximately how many hours do you engage in community service? (circle one for each category).

As part of a class

0 1-5 6-10 11-15 16-20 21-25 26-30

With a student organization

0 1-5 6-10 11-15 16-20 21-25 26-30

As part of a work study experience

0 1-5 6-10 11-15 16-20 21-25 26-30

On your own

0 1-5 6-10 11-15 16-20 21-25 26-30

7. Check all the following activities you engaged in during your college experience.

- ☐ Studied abroad
- ☐ Experienced a practicum, internship, field experience, co-op experience, or clinical experience
- ☐ Participated in a learning community or some other formal program where groups of students take two or more classes together.
- ☐ Enrolled in a culminating senior experience (capstone course, thesis etc.)

- None of the above

YOUR PERCEPTIONS BEFORE ENROLLING IN COLLEGE

8. Looking back to *before you started college*, how confident were you that you would be successful at the following: (Circle one response for each.)

1 = Not at all confident 3 = Confident
2 = Somewhat confident 4 = Very confident

Handling the challenge of college-level work ..	1	2	3	4
Feeling as though you belong on campus	1	2	3	4
Analyzing new ideas and concepts	1	2	3	4
Applying something learned in class to the “real world”	1	2	3	4
Enjoying the challenge of learning new material	1	2	3	4
Appreciating new and different ideas, beliefs...	1	2	3	4
Leading others	1	2	3	4
Organizing a group’s tasks to accomplish a goal.....	1	2	3	4
Taking initiative to improve something	1	2	3	4
Working with a team on a group project	1	2	3	4

9. Looking back to *before you started college*, how often did you engage in the following activities: (Circle one response for each.)

1 = Never 3 = Often
2 = Sometimes 4 = Very Often

Performing volunteer work	1	2	3	4
Participating in student clubs/ groups	1	2	3	4
Participating in varsity sports	1	2	3	4
Took leadership positions in student clubs, groups or sports	1	2	3	4
Participating in community organizations (e.g. church youth group, scouts)	1	2	3	4
Taking leadership positions in community organizations	1	2	3	4
Participating in activism in any form (e.g. petitions, rally, protest)	1	2	3	4
Getting to know people from backgrounds different than your own.....	1	2	3	4
Learning about cultures different from your own	1	2	3	4

Participating in training or education that
developed your leadership skills 1 2 3 4

10. Looking back to before you started college, please indicate your agreement with the following items by choosing the number that most closely represented your opinion about that statement AT THAT TIME:

(Circle one response for each.)

1 = Strongly disagree	4 = Agree
2 = Disagree	5 = Strongly Agree
3 = Neutral	

Hearing differences in opinions enriched my
thinking 1 2 3 4 5

I had low self esteem 1 2 3 4 5

I worked well in changing environments 1 2 3 4 5

I enjoyed working with others toward
common goals 1 2 3 4 5

I held myself accountable for responsibilities
I agree to 1 2 3 4 5

I worked well when I knew the collective
values of a group 1 2 3 4 5

My behaviors reflected my beliefs..... 1 2 3 4 5

I valued the opportunities that allowed me to
contribute to my community, 1 2 3 4 5

I thought of myself as a leader ONLY if I was
the head of a group (e.g. chair, president) .. 1 2 3 4 5

11a. Before you started college, how would you describe the amount of leadership experience you have had (e.g., student clubs, performing groups, service organizations, jobs)? Please circle the appropriate number

No experience 1 2 3 4 5 Extensive experience

11b. Before you started college, how often did others give you positive feedback or encourage your leadership ability (e.g., teachers, advisors, mentors)?

Please circle the appropriate number

Never 1 2 3 4 5 frequently

11c. Before you started college, How would you have reacted to being chosen or appointed the leader of a group? Please circle the appropriate number

Very 1 2 3 4 5 very
uncomfortable comfortable

11d. Before you started college, how often did you see others be effective leaders?

Please circle the appropriate number

Never 1 2 3 4 5 frequently

11e. Before you started college, how often did you think of yourself as a leader

Please circle the appropriate number

Never 1 2 3 4 5 frequently

YOUR EXPERIENCE IN COLLEGE

12. How often have you engaged in the following activities during your college experience:
(Circle one for each item)

1 = Never **3 = Often**
2 = Sometimes **4 = Very Often**

Paid attention to national issues..... 1 2 3 4

Paid attention to global issues..... 1 2 3 4

Was aware of the current issues facing the
community surrounding your institution 1 2 3 4

Signed a petition or sent an email about a
social or political issue 1 2 3 4

Bought or did not buy a product or service
because of your views about the social or
political values of the company that produces
or provides it..... 1 2 3 4

Contacted a public official, newspaper,
magazine, radio, or television talk show to
express your opinion 1 2 3 4

Took part in a protest, rally, march, or
demonstration 1 2 3 4

13. Since starting college, how often have you:

been an involved member or active participant in college organizations?

Never 1 2 3 4 5 Much of the time

held a leadership position in a college organization? (for example, serving as an officer or a club or organization, captain of an athletic team, first chair in a musical group, section editor of the newspaper, chairperson of a committee)

Never 1 2 3 4 5 Much of the time

been an involved member or active participant in an off-campus community organization (e.g. PTA, church group)?

Never 1 2 3 4 5 Much of the time

held a leadership position in a community organization? (for example, serving as an officer or a club or organization, leader in a youth group, chairperson of a committee)

Never 1 2 3 4 5 Much of the time

YOUR STUDENT GROUP INVOLVEMENTS

14. Which of the following kinds of student groups have you been involved with during college?

(Check all the categories that apply)

- ☐ Academic/ Departmental/ Professional (e.g., Pre-Law Society, an academic fraternity, Engineering Club)
- ☐ Arts/Theater/Music (e.g., Theater group, Marching Band)
- ☐ Campus-wide programming groups (e.g., program board, film series board, a multicultural programming committee)
- ☐ Cultural/ International (e.g., Black Student Union, German Club)
- ☐ Honor Society (e.g., Omicron Delta Kappa [ODK], Mortar Board, Phi Beta Kappa)
- ☐ Living-learning programs (e.g., language house, leadership floors, ecology halls)
- ☐ Leadership (e.g., Peer Leadership Program, Emerging Leaders Program)
- ☐ Media (e.g., Campus Radio, Student Newspaper)
- ☐ Military (e.g., ROTC)
- ☐ New Student Transitions (e.g., admissions ambassador, orientation advisor)
- ☐ Para professional group (e.g., Resident assistants, peer health educators)
- ☐ Political/ Advocacy (e.g., College Democrats, Students Against Sweatshops)
- ☐ Religious (e.g., Campus Crusades for Christ, Hillel)
- ☐ Service (e.g., Circle K, Alpha Phi Omega [APO])
- ☐ Culturally based fraternities and sororities (e.g., National Pan-Hellenic Council (NPHC) groups such as Alpha Phi Alpha Fraternity Inc., or Latino Greek Council groups such as Lambda Theta Alpha)
- ☐ Social fraternities or sororities (e.g. Panhellenic or Interfraternity Council groups such as Sigma Phi Epsilon or Kappa Kappa Gamma)
- ☐ Sports- Intercollegiate or Varsity (e.g., NCAA Hockey, Varsity Soccer)
- ☐ Sports- Club (e.g., Club Volleyball)
- ☐ Sports- Leisure or Intramural (ex: Intramural flag football, Rock Climbing)
- ☐ Special Interest (ex: Comedy Group)
- ☐ Student governance group (ex: Student Government Association, Residence Hall Association, Interfraternity Council) **IF CHECKED go to item 14A**

14A. Were you involved in your campus-wide student government association? (Circle one)

YES NO

If No, skip to item 15.

Thinking about your student government experience, indicate your level of agreement with the following items:

(Circle one response for each.)

1 = Strongly disagree

4 = Agree

2 = Disagree

5 = Strongly agree

3 = Neutral

I found it hard to represent my constituents' concerns 1 2 3 4 5

I successfully initiated change on behalf of my constituents (e.g., policy, institutional, or social) 1 2 3 4 5

My motivation for involvement was about gaining influence 1 2 3 4 5

My motivation for involvement was to receive recognition..... 1 2 3 4 5

My motivation for involvement was to help others 1 2 3 4 5

I have witnessed effective constituency-based efforts for change 1 2 3 4 5

Effective constituency-based efforts for change have influenced my own actions 1 2 3 4 5

I held a constituency-based position prior to this college SGA experience (e.g. high school or other governance group) 1 2 3 4 5

Experience with previous constituency based positions did NOT make me more effective in my college SGA work. 1 2 3 4 5

15. At any time during your college experience, how often have you been in mentoring relationships where another person intentionally assisted your growth or connected you to opportunities for career and personal development?

Indicate how many times

Student affairs staff

(e.g., a student organization advisor, career counselor, the Dean of Students, or residence hall coordinator):

.....never once several many

Facultynever once several many

Employersnever once several many

Community membersnever once several many

Other studentsnever once several many

16. During interactions with other students outside of class, how often have you done each of the following in an average school year? (Circle one for each.)

1 = Never 3 = Often
2 = Sometimes 4 = Very Often

Talked about different lifestyles/

customs..... 1 2 3 4

Held discussions with students whose

personal values were very different

from your own..... 1 2 3 4

Discussed major social issues such as

peace, human rights, and justice..... 1 2 3 4

Held discussions with students whose

religious beliefs were very different

from your own..... 1 2 3 4

Discussed your views about

multiculturalism and diversity..... 1 2 3 4

Held discussions with students whose

political opinions were very different

from your own..... 1 2 3 4

DEVELOPING YOUR LEADERSHIP ABILITIES

17. **Since starting college**, how many times have you participated in the following types of training or education that developed your leadership skills (ex: courses, Resident Assistant training, organization retreats, job training) (Circle one for each.)

17a- Short-Term Experiences (ex: individual or one-time workshops, retreats, conferences, lectures, or training)

Never once several many

17b-Moderate-Term Experiences (ex: a single course, multiple or ongoing retreats, conferences, institutes, workshops, and/or training.

Never once several many

If NEVER skip to 17c:

Did your experience involve any academic courses? YES NO

If no, skip to 17c

a. How many leadership courses have you completed?

b. How many other courses have you taken that contributed to your leadership abilities (e.g. ethics course, personal development courses, management courses)? *Keep in mind you might have taken such a course but it did not contribute to your leadership.*

17c- Long-Term Experiences (ex: multi-semester leadership program, leadership certificate program, leadership minor or major, emerging leaders program, living-learning program),
Never once several many

if NEVER skip to 18

Which of the following Long-Term Activities did you experience? (check all that apply)

- ☐ Emerging or New Leaders Program
- ☐ Peer Leadership Program
- ☐ Leadership Certificate Program
- ☐ Multi-Semester Leadership Program
- ☐ Senior Leadership Capstone Experience
- ☐ Residential Living-learning leadership program
- ☐ Leadership Minor
- ☐ Leadership Major
- ☐ Other

ASSESSING LEADERSHIP DEVELOPMENT

18. Please indicate your agreement or disagreement with the following items by choosing the number that most closely represents your opinion about that statement.
(Circle one response for each.)

For the statements that refer to a group, think of the most effective, functional group of which you have been a part. This might be a formal organization or an informal study group. For consistency, use the same group in all your responses.

1 = Strongly disagree
2 = Disagree
3 = Neutral

4 = Agree
5 = Strongly Agree

- I am open to others' ideas 1 2 3 4 5
- Creativity can come from conflict 1 2 3 4 5
- I value differences in others 1 2 3 4 5
- I am able to articulate my priorities 1 2 3 4 5
- Hearing differences in opinions enriches
my thinking 1 2 3 4 5
- I have low self esteem 1 2 3 4 5
- I struggle when group members have
ideas that are different from mine 1 2 3 4 5
- Transition makes me uncomfortable 1 2 3 4 5
- I am usually self confident 1 2 3 4 5
- I am seen as someone who works
well with others 1 2 3 4 5

Greater harmony can come out of disagreement	1	2	3	4	5
I am comfortable initiating new ways of looking at things	1	2	3	4	5
My behaviors are congruent with my beliefs.....	1	2	3	4	5
I am committed to a collective purpose in those groups to which I belong	1	2	3	4	5
It is important to develop a common direction in a group in order to get anything done	1	2	3	4	5
I respect opinions other than my own	1	2	3	4	5
Change brings new life to an organization	1	2	3	4	5
The things about which I feel passionate have priority in my life	1	2	3	4	5
I contribute to the goals of the group	1	2	3	4	5
There is energy in doing something a new way	1	2	3	4	5
I am uncomfortable when someone disagrees with me.....	1	2	3	4	5
I know myself pretty well	1	2	3	4	5
I am willing to devote the time and energy to things that are important to me	1	2	3	4	5
I stick with others through difficult times.....	1	2	3	4	5
When there is a conflict between two people, one will win and the other will lose.....	1	2	3	4	5
Change makes me uncomfortable.....	1	2	3	4	5
It is important to me to act on my beliefs ..	1	2	3	4	5
I am focused on my responsibilities	1	2	3	4	5
I can make a difference when I work with others on a task	1	2	3	4	5
I actively listen to what others have to say	1	2	3	4	5
I think it is important to know other people's priorities.....	1	2	3	4	5
My actions are consistent with my					

values	1	2	3	4	5
I believe I have responsibilities to my community	1	2	3	4	5
I could describe my personality	1	2	3	4	5
I have helped to shape the mission of the group	1	2	3	4	5
New ways of doing things frustrate me	1	2	3	4	5
Common values drive an organization.....	1	2	3	4	5
I give time to making a difference for someone else	1	2	3	4	5
I work well in changing environments.....	1	2	3	4	5
I work with others to make my communities better places	1	2	3	4	5
I can describe how I am similar to other people.....	1	2	3	4	5
I enjoy working with others toward common goals	1	2	3	4	5
I am open to new ideas	1	2	3	4	5
I have the power to make a difference in my community	1	2	3	4	5
I look for new ways to do something.....	1	2	3	4	5
I am willing to act for the rights of others.....	1	2	3	4	5
I participate in activities that contribute to the common good.....	1	2	3	4	5
Others would describe me as a cooperative group member.....	1	2	3	4	5
I am comfortable with conflict.....	1	2	3	4	5
I can identify the differences between positive and negative change.....	1	2	3	4	5
I can be counted on to do my part.....	1	2	3	4	5
Being seen as a person of integrity is important to me	1	2	3	4	5
I follow through on my promises.....	1	2	3	4	5
I hold myself accountable for responsibilities I agree to.....	1	2	3	4	5
I believe I have a civic responsibility to the greater public.....	1	2	3	4	5
Self-reflection is difficult for me	1	2	3	4	5
Collaboration produces better results.....	1	2	3	4	5
I know the purpose of the groups to					

which I belong.....1 2 3 4 5
 I am comfortable expressing myself.....1 2 3 4 5
 My contributions are recognized by
 others in the groups I belong to.....1 2 3 4 5
 I work well when I know the collective
 values of a group1 2 3 4 5
 I share my ideas with others1 2 3 4 5
 My behaviors reflect my beliefs1 2 3 4 5
 I am genuine1 2 3 4 5
 I am able to trust the people with
 whom I work1 2 3 4 5
 I value opportunities that allow me to
 contribute to my community1 2 3 4 5
 I support what the group is trying to
 accomplish1 2 3 4 5
 It is easy for me to be truthful.....1 2 3 4 5

THINKING MORE ABOUT YOURSELF

19. How would you characterize your political views?

(Mark One)

- ☐ Far left
- ☐ Liberal
- ☐ Middle-of-the-road
- ☐ Conservative
- ☐ Far right

20. In thinking about how you have changed during college, to what extent do you feel you have grown in the following areas? (Circle one response for each.)

1 = Not grown at all 3 = Grown

2 = Grown somewhat 4 = Grown very much

Ability to put ideas together and to see
relationships between ideas1 2 3 4

Ability to learn on your own, pursue
ideas, and find information you need1 2 3 4

Ability to critically analyze ideas and
information1 2 3 4

Learning more about things that are new

to you 1 2 3 4

21. Please indicate the extent to which you agree or disagree with the following statements.

(Circle one response for each.)

1 = Strongly disagree 3 = Agree
2 = Disagree 4 = Strongly agree

Since coming to college, I have learned a
great deal about other racial/ethnic
groups 1 2 3 4

I have gained a greater commitment to my
racial/ethnic identity since coming to college... 1 2 3 4

My campus's commitment to diversity fosters
more division among racial/ethnic groups
than inter-group understanding 1 2 3 4

Since coming to college, I have become aware
of the complexities of inter-group
understanding 1 2 3 4

THINKING ABOUT LEADERSHIP

22. How confident are you that you can be successful at the following: (Circle one response for each.)

1 = Not at all confident 3 = Confident
2 = Somewhat confident 4 = Very confident

Leading others 1 2 3 4

Organizing a group's tasks to accomplish a goal . 1 2 3 4

Taking initiative to improve something 1 2 3 4

Working with a team on a group project 1 2 3 4

23. To what degree do you agree with these items?

(Circle one response for each.)

1 = Strongly disagree
2 = Disagree
3 = neither agree or disagree
4 = Agree
5 = Strongly agree

It is the responsibility of the head of a group

to make sure the job gets done..... 1 2 3 4 5

A person can lead from anywhere in the

organization, not just as the head of

the organization 1 2 3 4 5

I spend time mentoring other group

members 1 2 3 4 5

I think of myself as a leader ONLY if I am

the head of a group (e.g. chair, president) 1 2 3 4 5

Group members share the responsibility

for leadership..... 1 2 3 4 5

I am a person who can work effectively

with others to accomplish our shared

goals 1 2 3 4 5

I do NOT think of myself as a leader

when I am just a member of a group 1 2 3 4 5

Leadership is a process all people in the

group do together..... 1 2 3 4 5

I feel inter-dependent with others in a

group. 1 2 3 4 5

I know I can be an effective member of

any group I choose to join..... 1 2 3 4 5

Teamwork skills are important in all

organizations 1 2 3 4 5

The head of the group is the leader and

members of the group are followers..... 1 2 3 4 5

YOUR COLLEGE CLIMATE

24. Select the number that best represents your experience with your overall college climate

Closed, hostile, intolerant, unfriendly	1 2 3 4 5 6 7	Open, inclusive, supportive, friendly
---	---------------------------	---

BACKGROUND INFORMATION

25. What were your average grades in High School?

(Choose One)

- ☐ A or A+
- ☐ A- or B+
- ☐ B
- ☐ B- or C+
- ☐ C
- ☐ C- or D+
- ☐ D or lower

26. Did your high school require community service for graduation? (Circle One)

.....YES NO

27. What is your age?

28. What is your gender?

- ☐ Female
- ☐ Male
- ☐ Transgender

29. What is your sexual orientation?

- ☐ Heterosexual
- ☐ Bisexual
- ☐ Gay/Lesbian
- ☐ Rather not say

30. Indicate your citizenship and/ or generation status:

(Choose One)

- ☐ Your grandparents, parents, and you were born in the U.S.
- ☐ Both of your parents AND you were born in the U.S.
- ☐ You were born in the U.S., but at least one of your parents was not
- ☐ You are a foreign born, naturalized citizen
- ☐ You are a foreign born, resident alien/ permanent resident
- ☐ You are on a student visa

31. Please indicate your racial or ethnic background. (Mark all that apply)

- ☐ White/Caucasian
- ☐ African American/Black

- American Indian/Alaska Native
- Asian American/Asian
- Native Hawaiian/Pacific Islander
- Mexican American/Chicano
- Puerto Rican
- Cuban American
- Other Latino American
- Multiracial or multiethnic
- Race/ethnicity not included above

32. Do you have a mental, emotional, or physical condition that now or in the past affects your functioning in daily activities at work, school, or home?

Yes No

if Yes Please indicate all that apply:

- Deaf/Hard of Hearing
- Blind/Visually Impairment
- Speech/language condition
- Learning Disability
- Physical or musculoskeletal (e.g. multiple sclerosis)
- Attention Deficit Disorder/ Attention Deficit Hyperactivity Disorder
- Psychiatric/Psychological condition (e.g. anxiety disorder, major depression)
- Neurological condition (e.g. brain injury, stroke)
- Medical (e.g. diabetes, severe asthma)
- Other

33. What is your current religious affiliation?

(Choose One)

- None
- Agnostic
- Atheist
- Buddhist
- Catholic
- Hindu
- Islamic
- Jewish
- Mormon
- Quaker
- Protestant (e.g. Baptist, Methodist, Presbyterian)
- Other
- Other Christian
- Rather not say

34. What is your best estimate of your grades so far in college? [Assume 4.00 = A] (Choose One)

- 3.50 – 4.00
- 3.00 – 3.49
- 2.50 – 2.99
- 2.00 – 2.49
- 1.99 or less
- No college GPA

35. What is the HIGHEST level of formal education obtained by any of your parent(s) or guardian(s)? (Choose one)

- Less than high school diploma or GED

- High school diploma or GED
- Some college
- Associates degree
- Bachelors degree
- Masters degree
- Doctorate or professional degree (e.g., JD, MD, PhD)
- Don't know

36. What is your best estimate of your parent(s) or guardian(s) combined total income from last year? If you are independent from your parents, indicate your income.

(Choose one)

- Less than \$12,500
- \$12,500 - \$24,999
- \$25,000 – \$39,999
- \$40,000 – \$54,999
- \$55,000 - \$74,999
- \$75,000 - \$99,999
- \$100,000 - \$149,999
- \$150,000 - \$199,999
- \$200,000 and over
- Don't know
- Rather not say

37. Which of the following best describes where are you currently living while attending college?

(Choose one)

- Parent/guardian or other relative home
- Other private home, apartment, or room
- College/university residence hall
- Other campus student housing
- Fraternity or sorority house
- Other

INDIVIDUAL CAMPUS ITEMS

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

APPENDIX B: University of Maryland's Institutional Review Board Approval



UNIVERSITY OF
MARYLAND

INSTITUTIONAL REVIEW BOARD


2100 Blair Lee Building
College Park, Maryland 20742-5125
301.405.4212 TEL 301.314.1475 FAX
irb@deans.umd.edu
www.umresearch.umd.edu/IRB

MEMORANDUM

Renewal Approval Notification

October 1, 2007

To: Dr. Susan R. Komives
John Dugan
Lee Calizo
Kristan Cilente
Kirsten Freeman Fox
Jon Garland
Sean Gehrke
Renardo Hall
Katie Hershey
Ramsey Jajabi
Karol Martinez
Marlena Martinez
Jim Neumeister
Daniel Ostick
Julie Owen
Jeremy Page
Tom Segar
Nathan Slife
Wendy Wagner
Office of Campus Programs

From: Roslyn Edson, M.S., CIP 
IRB Manager
University of Maryland, College Park

Re: **IRB Application Number:** 05-0454
Title of Research Project: "The Multi-Institutional Study of Leadership"

Approval Date: September 28, 2007

Expiration Date: September 28, 2008

Type of Application: Renewal

Type of Research: Nonexempt

Type of Review: Expedited

APPENDIX C: Multi-Institutional Study of Leadership Informed Consent

INFORMED CONSENT FORM: RANDOM SAMPLE

Multi-Institutional Study of Leadership

[NOTE: Will be administered in an on line format]

You have been randomly selected to participate in an important research project being conducted by **[INSERT INSTITUTION NAME]** and the National Clearinghouse for Leadership Programs. The purpose of this research project is to enhance knowledge regarding college student leadership development as well as the influence of higher education on the development of leadership capacities.

If you choose to participate in this important research study, you will be asked to complete an online survey that should take about 20 minutes. On this survey you will be asked questions pertaining to your pre-college and college experiences and attitudes.

- All information collected in this study will be kept confidential. Reports and presentations on the study will be based on grouped data and will not reveal your identity. Data will be collected by an independent contractor specializing in survey collection.
- There are no known risks associated with your participation in this study.
- Your participation is entirely voluntary, and you are free to withdraw from participation at any time. Failure to participate will not result in the loss of any benefit from your institution.
- The research is not designed to help you personally, but the benefits of participation include contributing to research on an important topic.

If you have any questions about participating in this study, please contact **[INSERT INSTITUTION CONTACT NAME]**, your campus' principal investigator, at **[INSERT PHONE NUMBER]** or via email at **[INSERT EMAIL ADDRESS]**.

If you have questions about your rights as a research subject or wish to report a research-related injury, please contact the campus Institutional Review Board Office at **[INSERT LOCAL IRB CONTACT INFORMATION]**.

Answering "Yes" indicates that:

- you are at least 18 years of age;
- the research has been explained to you;
- your questions have been fully answered; and
- you freely and voluntarily choose to participate in this research project.

___ Yes, I wish to participate in this study and begin the instrument.

___ No, I do not wish to participate in this research study.



APPENDIX D: Variable Mean, Standard Deviation and N

Variable	Mean	Standard Deviation	N
Dependent Variable: Leadership Efficacy	12.1614	2.75892	669
Race: African American/Black	.0209	.14325	669
Race: Asian American	.0299	.17043	669
Race: Latino	.0254	.15749	669
Race: Multiracial	.1300	.33660	669
Race: Not Included	.0299	.17043	669
Gender: Female	.6143	.48711	669
Age	22.65	6.325	669
Parent Education: Unknown	.0209	.14325	669
Parent Education: Some College or Bachelor's Degree	.3842	.48676	669
Parent Education: Post Baccalaureate Degree	.4903	.50028	669
Parent Income: Don't Know	.1734	.37887	669
Parent Income: Rather Not Say	.0882	.28379	669
Parent Income: Over \$100,000	.3049	.46072	669
Parent Income: \$75,000 to \$99,999	.0867	.28160	669
Parent Income: \$40,000 to \$74,999	.1196	.32471	669
Other Disabilities	1.7997	1.24845	669
Pre-College Involvement: Performing volunteer work	2.60	.937	669
Pre-College Involvement: Participating in comm. organizations	2.50	1.110	669
Pre-College Involvement: Participating in student groups	2.66	1.036	669
Pre-College Involvement: Participating in varsity sports	2.35	1.281	669
Leadership efficacy pre-test	11.1076	3.09100	669
Carnegie: Extensive	.3617	.48086	669
Carnegie: Intensive	.1839	.38766	669
Carnegie: Masters	.3034	.46009	669
Carnegie: Bachelors	.1046	.30631	669
Class Standing: Sophomores	.22	.413	669
Class Standing: Juniors	.28	.450	669
Class Standing: Seniors	.29	.454	669
Mentorship: Student Affairs	2.04	1.062	669
Mentorship: Faculty	2.47	1.024	669
Mentorship: Employer	1.91	1.033	669
Mentorship: Community Member	1.72	.969	669
Mentorship: Other Student	2.58	1.086	669

Variable	Mean	Standard Deviation	N
Off-Campus: Employment	1.67	.472	669
Off-Campus: Community Service	1.46	.499	669
Off-Campus: Leadership Positions	1.71	1.166	669
On-Campus: Employment	1.77	.419	669
On-Campus: Breadth of Involvement	3.3692	2.99795	669
On-Campus: Leadership Positions	2.03	1.368	669
Leadership Training/Education: Short	.2182	.41336	669
Leadership Training/Education: Medium	.2347	.42411	669
Leadership Training/Education: Long	.2197	.41437	669
Campus Climate	4.97	1.380	669

APPENDIX E: Correlation Matrix of Variables

See the next five pages.

Appendix E:
Correlation Matrix of Variables

	Dependent Variable: Leadership Efficacy	Race: African American/Black	Race: Asian American	Race: Latino	Race: Multiracial	Race: Not Included	Gender: Female	Age	Parent Education: Unknown	Parent Education: Some College or Bachelor's Degree	Parent Education: Post Baccalaureate Degree	Parent Income: Don't Know	Parent Income: Rather Not Say	Parent Income: Over \$100,000	Parent Income: \$75,000 to \$99,999	Parent Income: \$40,000 to \$74,999
Dependent Variable: Leadership Efficacy	1.000															
Race: African American/Black	-0.028	1.000														
Race: Asian American	-0.164	-0.026	1.000													
Race: Latino	0.011	-0.024	-0.028	1.000												
Race: Multiracial	0.008	-0.057	-0.068	-0.062	1.000											
Race: Not Included	-0.033	-0.026	-0.031	-0.028	-0.068	1.000										
Gender: Female	0.016	0.051	-0.023	-0.028	-0.004	0.031	1.000									
Age	0.087	0.110	-0.043	0.036	-0.022	0.003	-0.062	1.000								
Parent Education: Unknown	-0.088	0.052	0.036	0.043	0.037	0.036	-0.056	0.029	1.000							
Parent Education: Some College or Bachelor's Degree	0.018	0.078	-0.066	0.029	0.042	-0.012	0.102	0.015	-0.115	1.000						
Parent Education: Post Baccalaureate Degree	-0.063	-0.081	0.039	-0.101	-0.059	0.003	-0.077	-0.223	-0.143	-0.775	1.000					
Parent Income: Don't Know	-0.068	-0.039	0.059	0.051	-0.048	0.012	0.038	-0.119	0.071	-0.021	0.033	1.000				
Parent Income: Rather Not Say	-0.072	-0.045	-0.024	0.017	-0.026	0.038	-0.014	-0.024	0.102	-0.040	0.022	-0.142	1.000			
Parent Income: Over \$100,000	0.078	-0.074	-0.040	-0.086	-0.034	-0.078	-0.049	-0.185	-0.074	-0.129	0.240	-0.303	-0.206	1.000		
Parent Income: \$75,000 to \$99,999	-0.010	-0.008	-0.023	-0.016	0.055	-0.054	-0.018	-0.091	-0.008	0.030	-0.005	-0.141	-0.098	-0.204	1.000	
Parent Income: \$40,000 to \$74,999	0.035	0.010	0.016	-0.030	-0.033	0.044	0.093	-0.032	-0.054	0.012	-0.030	-0.169	-0.115	-0.244	-0.114	1.000
Other Disabilities	-0.022	0.007	0.014	0.003	0.066	0.000	0.057	0.211	0.057	-0.004	-0.082	0.039	0.029	-0.144	-0.014	-0.015
Pre-College Involvement: Performing volunteer work	0.153	-0.049	0.010	-0.022	0.047	-0.056	0.171	-0.124	-0.015	-0.005	0.063	0.007	-0.002	0.066	0.025	0.001
Pre-College Involvement: Participating in comm.	0.156	0.000	0.016	-0.047	0.002	-0.063	0.084	-0.045	-0.057	0.059	0.007	-0.025	-0.060	-0.015	0.062	0.079
Pre-College Involvement: Participating in student groups	0.148	-0.053	0.015	-0.048	-0.042	-0.053	0.170	-0.296	0.017	-0.037	0.116	0.080	-0.021	0.071	0.049	0.053
Pre-College Involvement: Participating in varsity sports	0.168	-0.057	-0.069	-0.022	0.001	-0.124	-0.022	-0.193	0.000	-0.035	0.092	0.046	-0.045	0.127	0.044	-0.022
Leadership efficacy pre-test	0.549	-0.089	-0.074	0.080	-0.049	-0.094	-0.031	-0.022	-0.008	-0.022	0.013	-0.052	-0.042	0.119	-0.014	0.038

Appendix E:
Correlation Matrix of Variables

	Dependent Variable: Leadership Efficacy	Race: African American/Black	Race: Asian American	Race: Latino	Race: Multiracial	Race: Not Included	Gender: Female	Age	Parent Education: Unknown	Parent Education: Some College or Bachelor's Degree	Parent Education: Post Baccalaureate Degree	Parent Income: Don't Know	Parent Income: Rather Not Say	Parent Income: Over \$100,000	Parent Income: \$75,000 to \$99,999	Parent Income: \$40,000 to \$74,999
Carnegie: Extensive	0.016	-0.088	-0.023	0.017	0.005	-0.023	-0.145	-0.056	0.042	-0.051	0.058	-0.067	-0.004	0.008	0.000	0.049
Carnegie: Intensive	-0.008	0.011	0.053	-0.052	0.103	0.030	-0.028	0.035	-0.042	0.089	-0.084	-0.003	-0.068	-0.004	-0.050	-0.020
Carnegie: Masters	0.049	0.017	-0.020	-0.024	-0.043	-0.020	0.189	-0.007	-0.028	-0.007	0.016	0.050	0.070	-0.020	0.016	-0.043
Carnegie: Bachelors	-0.018	0.018	0.026	0.007	-0.080	-0.003	-0.080	-0.019	-0.016	0.011	-0.003	0.011	-0.003	-0.087	0.034	0.025
Class Standing: Sophomores	-0.087	-0.001	-0.008	0.007	-0.021	-0.008	-0.013	-0.127	-0.001	-0.038	0.075	0.045	0.040	0.027	0.056	0.017
Class Standing: Juniors	0.007	0.002	0.027	0.005	0.015	-0.012	-0.058	0.110	-0.045	0.033	-0.081	-0.014	-0.019	-0.024	-0.063	-0.015
Class Standing: Seniors	0.208	-0.047	-0.035	0.001	0.017	0.043	0.006	0.277	-0.024	0.044	-0.086	-0.101	-0.013	-0.023	-0.045	0.028
Mentorship: Student Affairs	0.040	0.044	0.068	0.030	0.031	-0.007	0.039	0.022	0.024	-0.047	0.030	0.098	-0.068	0.021	-0.072	0.008
Mentorship: Faculty	0.181	-0.016	-0.046	0.019	0.024	-0.011	0.016	0.084	-0.077	-0.003	0.023	0.042	-0.101	-0.004	0.000	0.039
Mentorship: Employer	0.168	0.003	-0.035	-0.004	0.065	-0.018	0.054	0.057	-0.037	0.053	-0.051	-0.051	-0.049	-0.041	-0.014	0.033
Mentorship: Community Member	0.155	0.063	0.014	-0.003	0.078	0.059	0.003	0.023	0.009	0.021	-0.030	0.012	-0.015	-0.073	0.005	0.048
Mentorship: Other Student	0.175	-0.031	0.035	0.027	-0.003	-0.022	0.124	-0.041	-0.050	-0.012	0.031	0.084	-0.081	-0.022	0.025	0.022
Off-Campus: Employment	-0.162	0.037	0.031	-0.067	-0.057	-0.043	-0.039	-0.125	0.059	-0.087	0.110	0.084	0.063	0.083	0.038	-0.013
Off-Campus: Community Service	-0.189	0.010	0.030	0.002	0.032	0.030	-0.037	0.015	0.052	0.016	-0.015	0.016	0.006	-0.018	-0.010	-0.048
Off-Campus: Leadership Positions	0.190	0.018	-0.040	0.023	-0.015	0.013	-0.013	0.113	-0.054	0.015	-0.048	-0.026	0.013	-0.090	-0.038	0.099
On-Campus: Employment	-0.011	0.005	-0.051	0.020	-0.034	0.032	0.025	0.056	0.054	-0.048	0.047	0.032	0.005	0.096	-0.061	-0.097
On-Campus: Breadth of Involvement	0.239	-0.046	0.049	-0.010	0.025	-0.042	-0.056	-0.084	-0.022	-0.077	0.053	-0.050	-0.019	0.067	0.035	-0.004
On-Campus: Leadership Positions	0.300	-0.049	0.022	0.025	0.022	-0.061	-0.068	-0.047	-0.033	-0.081	0.094	-0.021	-0.022	0.063	0.002	0.067
Leadership Training/Education: Short	-0.061	0.049	0.056	0.030	0.043	-0.008	0.032	-0.036	0.024	0.059	-0.019	-0.003	0.027	-0.028	-0.034	-0.016
Leadership Training/Education: Medium	0.080	-0.007	-0.014	-0.067	-0.036	0.048	0.026	0.053	0.042	0.005	-0.028	0.045	-0.035	0.009	-0.033	0.089
Leadership Training/Education: Long	0.212	-0.002	-0.008	0.029	0.020	-0.030	-0.032	0.026	-0.078	-0.011	0.021	-0.043	0.000	-0.022	0.132	-0.018
Campus Climate	0.246	-0.012	-0.035	0.044	-0.054	0.003	0.094	0.090	-0.065	0.002	0.004	0.075	-0.070	-0.082	0.060	-0.030

Appendix E:
Correlation Matrix of Variables

	Other Disabilities	Pre-College Involvement Performing volunteer work	Pre-College Involvement Participating in comm.	Pre-College Involvement Participating in student groups	Pre-College Involvement Participating in varsity sports	Leadership efficacy pre-test	Carnegie: Extensive	Carnegie: Intensive	Carnegie: Masters	Carnegie: Bachelors	Class Standing: Sophomores	Class Standing: Juniors	Class Standing: Seniors	Mentorship: Student Affairs	Mentorship: Faculty	Mentorship: Employer
Dependent Variable: Leadership Efficacy																
Race: African American/Black																
Race: Asian American																
Race: Latino																
Race: Multiracial																
Race: Not Included																
Gender: Female																
Age																
Parent Education: Unknown																
Parent Education: Some College or Bachelor's Degree																
Parent Education: Post Baccalaureate Degree																
Parent Income: Don't Know																
Parent Income: Rather Not Say																
Parent Income: Over \$100,000																
Parent Income: \$75,000 to \$99,999																
Parent Income: \$40,000 to \$74,999																
Other Disabilities	1.000															
Pre-College Involvement: Performing volunteer work	0.024	1.000														
Pre-College Involvement: Participating in comm.	0.013	0.551	1.000													
Pre-College Involvement: Participating in student groups	-0.061	0.452	0.389	1.000												
Pre-College Involvement: Participating in varsity sports	-0.058	0.188	0.221	0.384	1.000											
Leadership efficacy pre-test	-0.030	0.264	0.188	0.258	0.195	1.000										

Appendix E:
Correlation Matrix of Variables

	Other Disabilities	Pre-College Involvement: Performing volunteer work	Pre-College Involvement: Participating in comm.	Pre-College Involvement: Participating in student groups	Pre-College Involvement: Participating in varsity sports	Leadership efficacy pre-test	Carnegie: Extensive	Carnegie: Intensive	Carnegie: Masters	Carnegie: Bachelors	Class Standing: Sophomores	Class Standing: Juniors	Class Standing: Seniors	Mentorship: Student Affairs	Mentorship: Faculty	Mentorship: Employer
Carnegie: Extensive	-0.079	0.064	0.044	0.085	0.038	0.094	1.000									
Carnegie: Intensive	0.061	0.002	-0.019	-0.047	-0.040	-0.030	-0.357	1.000								
Carnegie: Masters	0.020	0.013	0.016	0.051	0.044	-0.026	-0.497	-0.313	1.000							
Carnegie: Bachelors	-0.027	-0.041	0.022	-0.030	-0.018	0.001	-0.257	-0.162	-0.226	1.000						
Class Standing: Sophomores	-0.028	0.022	0.016	0.021	0.010	0.054	-0.029	-0.055	-0.026	0.079	1.000					
Class Standing: Juniors	0.066	-0.012	0.000	-0.041	-0.029	0.015	-0.048	0.038	0.000	0.058	-0.330	1.000				
Class Standing: Seniors	0.000	-0.039	0.011	-0.031	-0.014	-0.033	0.054	0.003	0.058	-0.100	-0.338	-0.400	1.000			
Mentorship: Student Affairs	0.050	0.114	0.046	0.052	0.013	-0.001	-0.108	-0.029	0.104	0.079	0.011	-0.049	0.035	1.000		
Mentorship: Faculty	0.023	0.088	0.076	0.063	0.066	0.107	-0.076	-0.028	0.103	0.046	-0.007	0.017	0.105	0.471	1.000	
Mentorship: Employer	0.008	0.067	0.094	0.066	0.070	0.105	-0.068	0.013	0.025	0.073	-0.093	0.050	0.195	0.226	0.374	1.000
Mentorship: Community Member	0.079	0.114	0.178	0.046	0.044	0.055	-0.107	0.071	0.070	0.016	-0.093	0.071	0.090	0.252	0.283	0.366
Mentorship: Other Student	-0.006	0.114	0.122	0.096	0.053	0.058	-0.041	-0.046	0.073	0.050	-0.011	-0.003	0.050	0.339	0.388	0.307
Off-Campus: Employment	-0.022	-0.016	-0.024	0.031	0.046	-0.030	0.077	-0.049	-0.023	0.045	0.097	-0.073	-0.198	0.072	-0.034	-0.171
Off-Campus: Community Service	0.049	-0.275	-0.215	-0.184	-0.140	-0.142	-0.016	-0.025	0.017	-0.064	0.001	-0.029	-0.001	-0.100	-0.120	-0.079
Off-Campus: Leadership Positions	0.003	0.090	0.244	0.067	0.023	0.055	0.004	-0.039	0.015	0.059	-0.084	0.111	0.112	0.061	0.071	0.192
On-Campus: Employment	0.122	-0.019	-0.119	-0.097	-0.057	0.015	-0.008	0.036	0.016	-0.129	-0.059	0.029	-0.094	-0.047	-0.021	-0.228
On-Campus: Breadth of Involvement	-0.070	0.210	0.200	0.286	0.146	0.126	-0.043	-0.020	0.106	0.048	0.010	0.025	0.132	0.190	0.205	0.177
On-Campus: Leadership Positions	-0.077	0.143	0.156	0.275	0.122	0.161	0.040	-0.060	0.046	0.022	-0.047	0.080	0.144	0.218	0.202	0.163
Leadership Training/Education: Short	-0.040	-0.001	-0.004	0.004	0.021	-0.037	-0.021	0.001	-0.026	0.056	-0.025	0.032	-0.035	-0.102	-0.075	-0.061
Leadership Training/Education: Medium	0.027	0.023	0.033	0.044	-0.108	0.017	-0.050	-0.008	0.079	-0.016	0.049	0.046	0.035	0.109	0.123	0.091
Leadership Training/Education: Long	-0.022	0.066	0.096	0.089	0.150	0.116	-0.001	0.037	-0.005	0.031	-0.062	0.006	0.130	0.126	0.129	0.153
Campus Climate	-0.031	0.053	0.057	0.027	0.073	0.110	-0.058	-0.019	0.036	-0.004	-0.047	-0.010	0.034	0.129	0.192	0.140

Appendix E:
Correlation Matrix of Variables

	Mentorship: Community Member	Mentorship: Other Student	Off-Campus: Employment	Off-Campus: Community Service	Off-Campus: Leadership Positions	On-Campus: Employment	On-Campus: Breadth of Involvement	On-Campus: Leadership Positions	Leadership Training/Education : Short	Leadership Training/Education : Medium	Leadership Training/Education : Long	Campus Climate
Carnegie: Extensive												
Carnegie: Intensive												
Carnegie: Masters												
Carnegie: Bachelors												
Class Standing: Sophomores												
Class Standing: Juniors												
Class Standing: Seniors												
Mentorship: Student Affairs												
Mentorship: Faculty												
Mentorship: Employer												
Mentorship: Community Member	1.000											
Mentorship: Other Student	0.389	1.000										
Off-Campus: Employment	-0.109	0.045	1.000									
Off-Campus: Community Service	-0.206	-0.157	-0.047	1.000								
Off-Campus: Leadership Positions	0.329	0.150	-0.144	-0.256	1.000							
On-Campus: Employment	-0.025	-0.070	-0.202	0.033	-0.033	1.000						
On-Campus: Breadth of Involvement	0.236	0.187	0.038	-0.311	0.285	-0.218	1.000					
On-Campus: Leadership Positions	0.175	0.276	0.032	-0.321	0.315	-0.198	0.563	1.000				
Leadership Training/Education: Short	-0.067	-0.014	-0.018	0.001	-0.050	0.053	-0.053	-0.047	1.000			
Leadership Training/Education: Medium	0.124	0.033	0.010	-0.056	0.070	-0.036	0.074	0.097	-0.293	1.000		
Leadership Training/Education: Long	0.166	0.240	0.031	-0.212	0.258	-0.126	0.364	0.317	-0.280	-0.294	1.000	
Campus Climate	0.119	0.233	0.046	-0.158	0.105	-0.024	0.141	0.173	-0.008	0.042	0.149	1.000

APPENDIX F: Demographic Characteristics of Missing Data

Appendix F

Demographic Characteristics of Missing Data

Respondent Characteristics	N=815	FINAL SAMPLE N=717
<u>Gender</u>		
Male	313	277
Female	499	437
<u>Race</u>		
Caucasian/White	618	543
Black/African American	18	16
Asian American/Pacific Islander	25	22
Latino/Hispanic	23	21
Multiracial	103	93
Unknown	23	22
<u>Age</u>		
18 to 21 years old	494	433
22 to 25 years old	193	173
26 to 30 years old	53	47
31 to 40 years old	41	35
41 years old or older	31	26
<u>Parental Education</u>		
No college education	91	81
Some college or Bachelors degree	310	270
Post-Bachelors degree	394	347
Unknown	19	18
<u>Parental Income</u>		
Less than \$39,999	190	167
Between \$40,000 and \$74,999	105	83
Between \$75,000 and \$99,999	66	60
Over \$100,000	244	219
Rather not say	75	65
Unknown	19	17

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