

ABSTRACT

Title of Document: PEER MENTORING AND LEADERSHIP:
DIFFERENCES IN LEADERSHIP SELF-
EFFICACY AMONG STUDENTS OF
DIFFERING PEER MENTORING
RELATIONSHIPS, GENDERS, AND
ACADEMIC CLASS LEVELS

Meredith Smith, Master of Arts, 2009

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This study examined the relationship between peer mentoring and leadership self-efficacy. The design of this study was an ex post facto analysis of a sub-study of 2006 Multi-Institutional Study of Leadership. The sample included 10,555 respondents from 52 institutions ranging in Carnegie classification type. The researcher utilized a one-way Analysis of Covariance (ANCOVA) to see if there was a significant difference in leadership self-efficacy between students who served as peer mentors and students who did not serve as peer mentors in college. The study found that students who served as peer mentors in college had a significantly higher leadership self-efficacy than non-peer mentors. Additionally, the study also examined the subset of respondents who identified as peer mentors in college. Utilizing a two-way ANCOVA, the researcher found no significant difference in leadership self-efficacy between male and female peer mentors. The finding of no significant difference in

leadership self-efficacy between gender groups is important because past studies on college students have found that men typically report higher levels of leadership self-efficacy than women. The researcher did find significant differences for each class-standing group in same two-way ANCOVA. The post-hoc Bonferroni multiple comparison procedure showed that there was significance across all class-standing groups. Another important finding from this study was that students who had mentors in college were more likely to serve as mentors. This post-hoc analysis was computed through implementing a chi-square test for independence. The overall findings of this study add important foundational understanding of the relationship between peer mentoring and leadership in college students.

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SELF-EFFICACY AMONG STUDENTS OF DIFFERING PEER MENTORING
RELATIONSHIPS, GENDERS, AND ACADEMIC CLASS LEVELS

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Dedication

This thesis is dedicated in the loving memory of my grandmothers Hilda Smith and Ruth Shire, whose strength of character and optimism for the future serves as a foundation for my inspiration.

Acknowledgments

This thesis represents the care and compassion of many wonderful people that I am blessed to have in my life. First and foremost, my academic advisor and mentor Dr. Linda M. Clement, whose unwavering support and calm advice through the past two years made this thesis an attainable goal for me. Dr. Clement truly embodies the scholar-practitioner through her compassion for student development and commitment to improving student affairs practice.

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CHAPTER ONE: INTRODUCTION

Mentoring relationships have traditionally been defined in terms of age and hierarchy whereby a senior or elder imparts some important knowledge, guidance, and friendship to someone who is younger and less experienced (Johnson & Ridley, 2004; Kram, 1985; Roche, 1979; Rosser, 2006). The meaning of the word “mentor” and the mentoring relationship can be traced back to Homer’s (1992) *The Odyssey*. Researchers remind us that in *The Odyssey*, the protagonist Odysseus entrusted the development and learning of his son Telémakhos to a friend and trusted elder named Mentor (Float, 2004; Homer, 1992; Johnson & Ridley; Komives & Collins-Shapiro, 2006; “Mentor”, 2008; Roche).

Mentoring relationships in a twenty-first century context are much more complex and undefined than the relationship of Telémakhos and Mentor. Centuries after *The Odyssey*, mentoring relationships are still ambiguous and multifaceted. During the past three decades there has been a tremendous growth in attention toward mentoring and an evolution in definition, purpose, structure, and outcomes of mentoring relationships (Kram, 1985b; Kram & Isabella, 1985; Zachary, 2006). The original paradigm of a wise elder training a young protégé does not begin to encompass the many types of mentoring that occur in higher education. This paradigm does not take into account some of today’s mentoring relationships consist of mentors who are not necessarily “senior” to their mentees. Moreover, there are many types of personal associations that can constitute mentoring relationships. These relationships can be informal or formal; they can include intentional/non-intentional dynamics related to age, gender, race, socio-economic status and organizational position (Givres, Zepeda & Gwathmey, 2005; Kram, 1985b; Wallace, Abel, Ropers-Huilman, 2000).

In the last thirty years, researchers have begun to explore the role and purpose of mentoring and how to define it. In considering the concept of mentoring relationships, it is important to clarify a working definition of the role and purpose of mentors. Recent characterizations of mentoring have focused on Kram's (1985b) definition of mentors as people who intentionally assist other individuals' growth and connect individuals to opportunities for career or personal development. Kram's definition is widely cited in studies and literature on mentoring relationships (Bernier, Larose & Soucy, 2005; Budge, 2006; Collins-Shapiro, 2006; Forbess, 2007; Goh, Ogan, Ahuja, Herring & Robinson, 2007; Kram, 1985b; Kram & Isabella, 1985). This study utilized Kram's definition of mentoring. Within the general research on mentorship in college, few researchers have focused on peer mentoring associations which are mentoring relationships that consist of participants who are closer in age to one another or belong to similar peer groups (Kram & Isabella, 1985; Lahman, 1999; Smith, 2008).

To date, the majority of studies on mentoring can be simplified into three categories: mentoring in the corporate world, mentoring between faculty or student affairs professionals in higher education, and mentoring between faculty and students in higher education (Blackhurst, 2000; Gibson, 2006; Roche, 1979; Shore, Toyokawa & Anderson, 2008; White & Anttonen, 2007; Williams, Levine, Malhotra & Holtzheimer, 2004). Specifically in higher education, some studies have focused on outcomes such as retention rates and career development for students who have been mentored (Bernier, Larose & Soucy, 2005; Bordes & Arredondo, 2005; Bulloch, 2007; Erkhut & Mokros, 1984; Forbess, 2007; Kram, 1985b; Kram & Isabella, 1985). These studies are important to understanding the traditional role of mentoring in higher education. However, these studies do not provide insight into peer mentoring. Peer mentoring relationships are

potentially more prevalent on college campuses than traditional faculty and student mentoring (Kezar, 2006; Kram & Isabella).

Chickering and Reisser (1993) echo Astin's (1993) assertion that peers are the most powerful influence on students' development in college. Moreover, Astin suggests that students engage with each other at least twice as much as they engage with faculty or student affairs professionals. Peer relationships are easier for students to maintain and establish due to students' close proximity with other students and similar experiences such as being away from home facing college for the first time (Astin; Swenson, Nordstrom & Hiester, 2008). In addition, research also found that peer interaction can also promote leadership (Astin; Baker, 2001; Dugan & Komives, 2007). Yet, for the most part, recent research has not defined the "precise nature" of peer relationships and influence in college (Pascarella & Terenzini, 2005, p 418). In earlier research Newcomb (1962) identified the nature of peer group influences. Newcomb suggested that students' attitudes and values change when those students are in close relationships with peers. More recently, Swenson et al. found that peer relationships are an integral portion of most students' experiences in college. Students tend to get involved more in peer relationships due to the lack of faculty interaction or availability (Kezar, 2006; Kram & Isabella, 1985). In terms of mentoring, Kezar (2006) pointed out that peer mentors take on an "important role" because of the absence and lack of faculty mentoring (p. 103).

Current research on the peer mentoring phenomenon focused primarily on outcomes for the students who were mentored by others (Budge, 2006; Forbess, 2007). This body of research omits discussion of students who engaged as mentors. Additionally, these studies on peer mentoring do not reflect how peer mentoring occurs in practice (Barrio-Sotillo, Miller, Nagasaka, & Arguelles, 2009; Budge; Forbess; Gupton,

Castelo-Rodríguez, Martínez & Quintanar, 2009). For example, Gupton et al. recommend peer mentoring programs for low income and first generation students because these programs provide students with the “motivation” and “validation” to persist in attaining diplomas (pp. 256-257). Formal and informal peer mentoring relationships take place throughout the academy; however there is a scarcity of empirically based studies on the students who serve as peer mentors and their potential leadership development (Baker, 2001; Goh, et al., 2007; Kram & Isabella, 1985).

Literature also suggested that engaging in peer mentoring might be a significant aspect of developing leadership capacity (Dugan & Komives, 2007; Komives, Lucas & McMahon, 2007; Kouzes & Posner, 2002; Posner, 2004; Tyree, 1998). The Leadership Identity Development Model (LID) described students mentoring behaviors as a higher stage of leadership development (Komives, Longerbeam, Owen, Mainella & Osteen, 2006). Through peer mentoring, students realize their own leadership potential (Komives et al.). “Participants’ role as mentors and sponsors of others led them to transition of internalizing their own person leadership identity” (Komives et al., p. 411). Additionally, peer mentoring has the potential to be used as a tool for empowerment, providing the mentor with leadership opportunities (Barrio-Sotillo et al., 2009). One group of practioners suggested that “students will become empowered through helping their peers achieve their goals” (Barrio-Sotillo et al., p. 275). The focus of this study was to examine the potential connection between serving as a peer mentor and leadership self-efficacy. Bandura (1977) wrote that role modeling and mentoring can serve as means for building self-efficacy. Self-efficacy is also an important predictor for students’ ability to complete a task (Bandura, 1995, 1997; Goh et al. 2007). Leadership self-efficacy is a construct that has been used more recently to show an individual’s confidence in his or

her ability to engage in leadership (Bandura, 1995; Drechsler & Jones, 2009; Fincher, 2008). Leadership self-efficacy is the dependent variable for this research study because it is a good predictor for students' ability to engage in leadership in that it represents students' confidence levels in their abilities to engage in leadership (Bandura, 1995; Fincher, 2008).

This study also explored group differences in leadership self-efficacy related to gender and class year groups of peer mentors. In terms of gender, the research of Sax and Arms (2008) hypothesized that gender might play an important role in students' participation in co-curricular activities. Other research on gender differences show that mentoring activities can be affected by gender and that men and women may tend to have different techniques of mentoring (Holmes, 2005; Scandura & Ragins, 1993; Scandura & Williams, 2001). Gupton et al. (2009) point out that peer to peer mentoring occurs in student organizations and co-curricular activities. However, Gupton et al. did not discuss the possible dimensions of students' class years. Current research does not include a breakdown of which students are mentoring other students in terms of class year and whether those student mentors' leadership self-efficacy is affected. The peer mentoring relationships that Kezar (2006) and Barrio-Sotillo et al. (2009) referred to consisted of upper-class students serving as peer mentors to first-years and sophomores. However, another study conducted by Clark (2005) focused on first-year students who participated as peer mentors. This study provides important descriptive data that indicates which students are serving as peer mentors in college. This is useful because it provides educators with information about which students are mentoring other students. Programs can be targeted towards students who fall into the mentoring and non-mentoring groups to better support all students.

Statement of the Problem

The definition and use of mentoring in higher education has advanced over the past several decades from solely psychosocial development and career outcomes to areas of college student persistence and leadership outcomes including self-efficacy (Collins-Shapiro, 2006; Kram, 1985b; Lahman, 1999; Zachary, 2006). Much of this developing body of research has focused largely on hierarchical mentoring relationships where faculty members or student affairs professionals impart information and advice to students through formal and informal relationships (Kram; Rosser, 2006; Zachary). Yet, researchers contend that peer mentoring makes up the majority of mentoring that takes place on college campuses (Kezar, 2006; Kram & Isabella, 1985). The work of past researchers and current practitioners suggests that students' peer relationships including peer mentoring are influential on their leadership abilities (Astin, 1993; Baker, 2001; Dugan & Komives, 2007; Komives et al., 2006; Komives, Lucas & McMahon, 2007; Kouzes & Posner, 2002; Posner, 2004; Tyree, 1998). Despite the abundance of peer mentoring relationships on college campuses, there is a lack of studies on peer mentoring and leadership (Goh, Ogan, Ahuja, Herring & Robinson, 2007; Lahman). The findings of this study will influence student affairs practice by providing greater understanding and clarity to the phenomenon of college student peer mentoring. This empirical study provides information on whether leadership self-efficacy is a potential outcome of serving as a peer mentor. By understanding the potential relationship between mentoring and leadership self-efficacy, educators will be able to create more intentional programs that foster leadership development for student mentors. Finally, this study lays important groundwork for future studies on peer mentoring and enhances the overall body of literature on mentoring in higher education in general.

Purpose of the Study and Research Questions

The purpose of this study was to gain greater understanding of how serving as peer mentors influences leadership self-efficacy in college students. The researcher first examined whether there are differences in leadership self-efficacy among students who identify as peer mentors and students who do not identify as peer mentors. Furthermore, within the group of peer mentors, this study explored possible leadership self-efficacy differences among gender and class standing groups, while also checking to see if there were any interaction effects between gender and class standing groups. To accomplish these goals, the study was guided by two research questions:

Question One: Do differences exist in the leadership self-efficacy of two groups of students when controlling for pre-college leadership self-efficacy: (a) those students who served as peer mentors in college, and (b) those students who did not serve as peer mentors in college?

Question Two: Of students who identified as serving as peer mentors, do differences exist in the leadership self-efficacy in terms of gender and class standing while controlling for pre-college leadership self-efficacy and examining the potential interaction effects of gender and class standing?

Definition of Key Terms

There were some important definitions of key terms that were utilized in this research study. This section highlights the important terms that were used throughout this study.

Mentor: For the purpose of this study the noun “mentor” shall be defined using Kram’s (1985b) definition of a mentor as a person who intentionally assists another individual or a set of individuals in their growth or connects that individual or set of

individuals to opportunities for career or personal development. The verb use of “mentor” consists of engaging in the action of assisting another in their growth or the connection to opportunities for career or personal development.

Mentee: A mentee is a person who is guided by a mentor (“Mentee”, 2008). In other words, this person is connected to opportunities or assisted in growth by a mentor. The word “protégé” is also common in mentoring literature when referring to the mentee. The researcher intentionally chose the word mentee instead of protégé. A protégé, by definition, is mentored by someone who has prominence, influence, and more experience (Scandura & Williams, 2001). Peer mentors are unlikely to have prominence, influence, or more experience as related to the students they are mentoring. The nature of the traditional mentor-protégé relationship and its implied age differentials and hierarchy does not accurately encompass peer mentoring relationships.

Mentoring relationship: For the purpose of this study, “mentoring relationship” will be broadly defined as a reciprocal relationship with mutual benefits and responsibilities for both the mentor and mentee (Collins-Shapiro, 2006; Kram, 1985a, Kram, 1985b; Rosser, 2006; Wallace, Abel, Ropers-Huilman, 2000; Zachary, 2006). Mentoring relationships are hard to define and can be formal or informal. Characteristics of these relationships may consist of coaching, sponsorship, role modeling, friendship, and acceptance (Collins-Shapiro; Kram; Rosser; Wallace et al.; Zachary).

Peer mentor: For the purpose of this study peer mentors are college students who mentor other students. Peer mentors will be identified by their affirmative response to the question “I spend time mentoring other group members” on the Multi-Institutional Study of Leadership (MSL) survey instrument.

Peer mentoring: Peer mentoring is defined as a relationship between a mentor and mentee in which the two individuals are very close in age or belong to the same peer group (i.e. college students).

Leadership self-efficacy: Leadership self-efficacy is the dependent variable of this study. Leadership self-efficacy is defined as a student's belief in his or her capacity to engage in leadership. Leadership self-efficacy is based upon the self-efficacy construct of Bandura (1995). Leadership self-efficacy contributes to how students act and whether they engage in leadership "efficacy beliefs influence how people think, feel, motivate themselves, and act" (Bandura, 1995, p.2). Furthermore, Bandura supposed that mentoring is an important component of building one's self-efficacy towards a task (Bandura; Goh et al., 2007). Chapter Three provides a more in-depth explanation on the procedures utilized to measure leadership self-efficacy.

Gender: There are continued breakthroughs in literature with regard to the concept of gender identity development and definitions of gender (Renn, 2007). For this study students were grouped by male, female and transgender. The sample size of students who identified as transgender was too small to conduct statistical comparisons with male and female students. Therefore, the researcher was only able to conduct group comparisons of male and female students.

Class standing: Class standing was identified by students' class year/level (e.g. first-year/freshman, sophomore, junior, or senior). The population for this study was traditional four-year college students who participated in a national study on leadership. Students were asked in the study to identify with a class year. The survey instrument did not include a question regarding credits attained toward degree attainment. Additionally,

class standing by credit attainment varied greatly among the institutions that participated in the 2006 study.

Overview of Research Methods

This study employed an ex post facto analysis of the 2006 Multi-Institutional Study of Leadership (MSL) national dataset. The MSL was designed specifically to explore leadership outcomes such as leadership self-efficacy and other outcomes related to the Social Change Model of Leadership Development (Dugan & Komives, 2007; Higher Education Research Institute [HERI], 1996). The conceptual framework for the MSL was Astin's (1993) *Inputs-Environments-Outcomes (I-E-O)* model described further in Chapter Two.

The research design specific to this study was a quasi-experimental design (Mertens, 2005) which was informed by Astin's (1993) *I-E-O* model. In quasi-experimental designs participants are not randomly assigned to groups as in true experimental designs (Mertens). The groupings varied based upon each research question (e.g. peer mentor, non-peer mentor, gender groupings, and class standing groups). The control for this study was students' leadership self-efficacy prior to college, the treatment factor was whether or not students served as peer mentors, and the outcome was the summation scores of leadership self-efficacy in college. In this study, the researcher controlled for the confounding variable of pre-college leadership self-efficacy as it may influence the outcome variable of leadership self-efficacy (Krathwohl, 1998). The leadership self-efficacy variable was measured by using the scale developed by the 19 member MSL team and described in further detail in Chapter Three (Komives & Dugan, 2005). Descriptive statistics were implemented to examine the two research questions

exploring factors of gender and class standing to see if there were significant differences among groups of peer mentors.

Significance of the Study

This study has several implications for theory and practice in higher education. One set of researchers stated that there is “no recipe” for mentoring success (Wallace et al., 2000, p. 92). This study shows how mentoring and leadership self-efficacy are related. It also adds to the body of literature on mentoring in higher education and provides a solid foundation for future studies on peer mentoring and leadership self-efficacy outcomes.

Theoretical Implications

Earlier in Chapter One, an examination of the current mentoring literature revealed that there is very little recent research on peer mentoring and its potential leadership outcomes. Mentoring and leadership practices both have traditionally been viewed as hierarchical practices (Komives, Lucas & McMahon, 2007; Kouzes & Posner, 2002; Kram, 1985b; Roche, 1979). The Leadership Identity Development (LID) model asserts that the act of mentoring others is part of building leadership one’s capacity (Komives, Owen, Longerbeam, Mainella & Osteen, 2005; Komives et al., 2006). According to LID, peer mentoring others helps students in their transition from the “generativity stage” of leadership where students have a greater commitment to others, to the “integration/synthesis” stage where students have “confidence” in their leadership ability in “almost any context” (Komives et al., 2006, pp. 411-412). This study examined the LID model in practice by seeking to understand whether students who are peer mentors demonstrate a higher leadership self-efficacy than their peers who are not peer mentors. Moreover, by examining class year and gender differences, this study adds

important understanding regarding gender differences and class standing in mentoring in leadership development (Boatwright & Egidio, 2003; Sax & Arms, 2008).

Students who mentor others are potentially more involved and engaged in student organizations than students who do not mentor others. Astin's (1999) Theory of Involvement contends that students who are involved have a greater amount of growth and development. This study further enhanced understanding Astin's theory in terms of peer mentors' leadership self-efficacy. Komives and Dugan (2007) found that "mentoring matters" in terms of students' leadership development in terms of the Social Change Model for students who were mentored (p. 15). This finding did not examine the role of mentoring for students who defined themselves as mentors.

Practical Implications

This study serves many practical purposes. For practioners who work with student organizations and student groups, it is be helpful to understand what, if any, peer mentoring is taking place. To date, there are very few studies on students who serve as mentors. This study also explores how serving as mentors affects students' confidence in their leadership abilities (Astin, 1993). Given the current societal emphasis on learning outcomes such as the recent *Spellings Commission Final Report on Higher Education*, it is vital that educators recognize the potential of peer mentoring and how much students learn from these relationships (U.S. Department of Education, 2006). By examining the outcomes on students' leadership self-efficacy as related to serving as a peer mentor, this study contributes to the trend of outcomes assessment called for by student affairs professional organizations and by the United States Department of Education (Dugan & Komives, 2007; NASPA & ACPA, 2004; U.S. Department of Education).

Student organization advisors will also have new research to support the development of more effective and meaningful mentoring opportunities for students. As LID suggests mentoring is important to the leadership development of students and the organizations of which they are apart (Komives et al, 2006). Through analysis of these research questions, this study informs future studies on peer mentoring behaviors that can potentially inform practice in the areas of leadership development and peer based leadership program development.

Implications for Mentoring

Some of the key findings of the 2006 primary analysis of the MSL data set found that mentoring, and especially peer mentoring for men contributed to social change leadership outcomes (Dugan & Komives, 2007). This researcher aims to continue this important work by exploring the mentoring outcomes from the perspective of the peer mentors. As previously stated, there has been a growth in understanding of mentoring relationships; however, there are very few studies on peer mentoring and leadership. This study enhances the collective understanding of mentoring and adds the perspective of the peer mentors. As the definition of mentoring gains focus on the mutual benefits of the mentor and mentee, it is important to establish what those possible benefits might be for students who participate as mentors (Kram & Isabella, 1985; Lahman, 1999; Wallace, Abel & Ropers-Huilman, 2000).

Conclusion

An introduction to the context, research questions, and key constructs for this study were provided in this chapter. The chapter highlighted several important implications for why peer mentoring should be researched in addition to other types of mentoring in higher education. In terms of mentoring on college campuses, one notable

implication is that peer mentoring potentially makes up the majority of mentoring that takes place (Kezar, 2006; Kram & Isabella, 1985). In the next chapter, a review of the relevant literature for this study is presented.

CHAPTER 2: REVIEW OF THE LITERATURE

In this chapter, relevant literature pertaining to the research questions for this study is explored in greater detail. The goal of this chapter is to provide a basic understanding of the current and foundational literature regarding mentoring and leadership and identify key gaps in literature further providing information about why this study is important. The chapter begins with a brief description of Astin's (1993) I-E-O Model which serves as the conceptual framework for the Multi-Institutional Study of Leadership (MSL)(Astin, 1970). Next, the chapter provides an overview of literature for the independent variable of peer mentoring including information on mentoring and peer mentoring, as well as special considerations of gender, age differentials, and race. The chapter continues with attention to literature related to the dependent variable of leadership self-efficacy and broader definitions of leadership as well. The chapter concludes with literature on the relationship between mentoring and leadership.

Astin's I-E-O Model

The conceptual framework for the MSL is Astin's (1970, 1993) I-E-O model. In 1970, Astin presented a new model for looking at college impact. The I-E-O model, which stands for Inputs, Environments and Outcomes, is an influential model for describing a college environment's impact on student outcomes. Unlike previous models which "inferred causation" of college environments on student outcomes, the I-E-O model recognized that students arrive to colleges and universities with unique sets of characteristics (Astin, 1970, p. 1). These characteristics are referred to as *inputs* and can include, but are not limited to students' sets of beliefs, social characteristics, family histories, and academic preparation (Astin). In other words, the *inputs* are what students bring to college that can have an effect on how the environment of a college impacts

certain outcomes for those students. Inputs can directly influence the environments students are exposed to, as well as the outcomes of college (Astin). The second component of the Astin's I-E-O model is called *environments*. The environment consists of what students are exposed to or involved in college. For example students' involvement in student organizations can be considered a type of environment. Finally the *outcomes* (originally in the 1970 model referred to as *outputs*) refer to changes or development that occur in students during their time in the environment (Astin). The I-E-O model is a holistic approach to how college impacts students' growth and development more accurately than previous models and theories (Astin). The research design commonly employed for I-E-O models is multiple linear regression (Astin, 1993; Creswell, 2009). It is important to note that the design of this study employs a quasi-experimental design and is not an I-E-O design. The MSL's use and consideration of the I-E-O design made this quasi-experimental design possible because the MSL included pre-college measures as inputs including pre-college measures of leadership self-efficacy.

Mentoring

An Overview of Mentoring

As stated in the introduction chapter the word mentor and the act of mentoring can be traced back to antiquity through the reading of Homer's (1992) *The Odyssey*. The character *Mentor* is described as an "old man" and is entrusted with "authority" over Telémakhos as a teacher, friend, and protector (Homer, 1992, p. 25). The mentoring relationship in *the Odyssey* between Telémakhos and the village elder demonstrates mentorship's roots in an apprenticeship model where an older person with power and influence takes a younger inexperienced individual into his or her care (Komives & Collins-Shapiro, 2006; Kram, 1985b, Johnson & Ridley, 2004; Roche, 1979; Rosser,

2006). As noted here, mentoring relationships have their roots in antiquity. However research on the purpose, structure, and outcomes of these relationships and the evolution of mentoring relationships have only been examined during the last few decades (Kram; Zachary, 2006).

Mentoring has long been included in literature regarding career development, business, and college student retention. (Bernier, Larose & Soucy, 2005; Blackhurst, 2000; Bordes & Arredondo, 2005; Bulloch, 2007; Gibson, 2006; Higgins & Kram, 2001; Kram & Isabella, 1985; Roche, 1979). For many studies on mentoring, the framework and structure of the relationship is very similar to the story described in *The Odyssey*. The mentoring relationships in these studies consist of more experienced people and younger protégés (Erkhut & Mokros, 1984; Higgins & Kram, 2001; Scandura & Williams, 2001). To date, studies on mentoring are very limited in higher education. Traditional mentoring was also examined through lenses of K-12 education and in corporate America (Budge, 2006; White & Anttonen, 2007).

One notable example of mentoring in corporate was a study conducted by Roche (1979) that appeared in the *Harvard Business Review*. The researcher's population was business executives and the research examined questions related to whether mentoring was an important factor in business executives' success. From this study it was found that mentors assisted business executives in their career advancement. Roche also found that two-thirds of successful business executives had an important mentor in their lives. Those executives who had mentors were more likely to stick to their career paths and earn higher salaries than their non-mentored counterparts. In an interesting link to higher education, among of the executives who identified as having important mentors, 15.4% stated that they had mentors while they were in college. It is important to acknowledge

the population of Roche's study. In 1979, women made up less than 1% of the population of business executives in Roche's study. Roche stated that women were more likely to seek out mentors than their male counterparts, but the samples of men versus women were not appropriate for statistical comparison due to disparity in group sizes. This study might yield different results if it were replicated today, thirty years later. However, it is significant to note that even in this, the first decade of the twenty-first century, women make up only 1% of the population of Chief Executive Officers in corporate America (Eagly, Johannesen-Schmidt & van Engen, 2003; U.S. Bureau of Labor, 2002). Corporate America and higher education are two very different environments. Eagly and Carli (2007) point out that in the past 30 years women have made tremendous strides for equality in the higher education field through attaining more leadership positions; yet this trend is not comparable in other fields.

More specifically related to this study is Kram's (1985b) research on mentoring in the workplace. Kram defined a mentor as someone who intentionally assists another individual's growth or connects that individual to opportunities for career and personal development. This definition emerged from research conducted on junior and senior managers in a public utility organization (Kram). Kram observed that mentoring served the functions of career development and psychosocial development. By "career functions" Kram was referring to mentoring as the process of helping an individual understand the nature of organizations in order to prepare for his or her "advancement in an organization" (p. 23). The terms "psychosocial functions" referred to in the researcher's words as "those aspects of a relationship that enhance a sense of competence, clarity of identity, and effectiveness" as a professional (Kram, p. 23). Kram also pointed out that the mentoring relationship has "benefits" for the mentors as well as

those being mentored (p. 3). The population of the 1985 study included only male mentors who ranged in age from five to 30 years older than the individuals they were mentoring. Although this research is a bit outdated and the population of the study does not apply directly to higher education, its emerging definition of mentoring has stood the test of time over the last three decades of mentoring research.

Mentoring in Higher Education

Mentoring can take on several different forms in higher education. This section provides a description of the goals of mentoring as related to higher education, as well as a discussion of types of mentoring relationships including formal and informal relationships. This section goes on to describe studies which focus on more traditional types of hierarchical mentoring such as mentoring amongst faculty and student affairs professionals as well as faculty/student affairs professional involved in student mentoring relationships. It is important to note that mentoring in higher education can also include peer mentoring relationships; this topic is discussed in further detail later in this chapter as it was the main focus of this study.

As previously stated, mentoring in higher education fits nicely into the Kram (1985b) definition. Kram's definition focuses on mentors as people who intentionally assist others in growth and connect those individuals to opportunities for career or personal development. More broadly in higher education this definition has two distinct foci: career development and psychosocial development (Rosser, 2006). This definition can apply to the many forms of mentoring that take place in higher education. Mentoring relationships can take on different forms at different times and these possibilities include roles as coaches, teachers, sponsors, and role models (Collins-Shapiro, 2006; Kram, 1985b; Rosser, 2006; Sosik & Godshalk, 2005).

Mentoring in higher education can take on many forms but generally falls into two categories, formal relationships and informal relationships (Lahman, 1999; Lloyd, 2004; Ragins & Cotton, 1999; Rosener, 1990; Smith, 2008; Wallace, Abel & Ropers-Huilman, 2007). Formal mentoring relationships develop through structured programs where students are typically matched with their mentor by a third party (Ragins & Cotton; Rosser, 2006; Wallace, Abel & Ropers-Huilman). Formal mentoring relationships are typically limited in their duration (Rosser; Wallace, Abel & Ropers-Huilman). In contrast, informal relationships develop more spontaneously, have an undefined duration of time, and consist of a mutually voluntary relationship between two or more people (Ragins & Cotton, 1999; Rosser, 2006; Wallace, Abel & Ropers-Huilman, 2007).

The goals of formal and informal mentoring relationships may also be different for the mentor and the mentee (Rosser, 2006; Wallace, Abel & Ropers-Huilman, 2007). Formal relationships typically have a purpose and set of structured outcomes in place that need to be accomplished. In contrast informal relationships can be somewhat more undefined and ambiguous (Wallace, Abel & Ropers-Huilman). The aforementioned studies did not pass judgment on which type of relationships had more benefits. This is partly due to the lack of research on both types of relationships and the difficulty in comparing purpose and outcomes for two very different types of relationships.

Wallace, Abel, and Ropers-Huilman (2007) recognized the need to examine both formal and informal mentoring programs and the lack of studies focused on student perceptions of mentoring relationships. The researchers' interest in mentoring was related to students' failing to persist in college due to lack of role models. The study's population was specifically students from underrepresented populations on college

campuses who were currently participating in TRIO programs. In this study, the university matched staff and faculty with students who were participating in TRIO programs. When students were matched in the formal mentoring program, race and gender were not considered as part of the matching criteria. Findings of the study concluded that students valued both their informal and formal relationships, but felt that each relationship served a different purpose.

It is important to note that the Wallace, Abel, and Ropers-Huilman (2007) study addressed the need for additional research to focus on students' perceptions of formal and informal mentoring. However, this study is not generalizable to the population of college students it intended to address. The study was qualitative in nature and focused primarily on underrepresented students at one institution and included a very small sample of students. In addition, one limitation the researchers clearly noted was that TRIO programs vary from institution to institution and there was a broad range of experiences this study failed to represent. In terms of mentoring, this study added important vocabulary to the understanding of mentoring relationships. The study also concluded that students did not always know how to describe or define the mentoring relationships in which they were engaged (Wallace et al.).

Kram (1985b) also stated that mentoring is a "broad range of developmental relationships" between older and younger individuals (p. 40). This type of mentoring implies people with more experience working with others who are their junior. Some studies in higher education focus on faculty and professional mentoring as an important step in faculty and professional learning (Blackhurst, 2000; Gibson, 2006; Shore, Toyokawa & Anderson, 2008; Williams, Levine, Malhotra & Holtzheimer, 2004). These studies show that mentoring potentially has many benefits including improving a

mentee's commitment to an organization, assisting the mentee in growth, serving as a vital component towards the mentee's completion of requirements and revitalizing a mentor's passion for his or her field of study (Blackhurst; Gibson; Williams, Levine, Malhotra & Holtzheimer,). That said, each of these studies raised important questions regarding race and gender for the mentor and mentees who participated in the mentoring relationships (Blackhurst; Gibson; Shore, Toyokawa & Anderson; Williams, Malhotra & Holtzheimer). The implications of gender and race in mentoring relationships are discussed later in this chapter.

Blackhurst (2000) conducted a study of women student affairs professionals with a quantitative survey instrument. The study included a sample of 304 women in student affairs whose employment included entry level professionals, graduate students, midlevel managers, as well as senior level administrators. The study concluded that women who had mentors in a work setting had more positive outcomes than women who did not have mentors at work (Blackhurst). These outcomes included reduction in role conflict and ambiguity with other coworkers and an increase in organizational commitment. Despite the overall findings of the benefits of mentoring over two-thirds of the women surveyed did not have mentors in their work settings (Blackhurst). This finding was true across the range of positions for women in student affairs positions (Blackhurst).

Although the sample was relatively large there were some inconclusive and contradictory findings in Blackhurst's (2000) study. First of all, the majority of senior and midlevel respondents did not have mentors. To the reader this might imply that women in senior and midlevel positions did not benefit from mentoring relationships. Also, there were some other factors not addressed in this study that assisted these senior and midlevel women in their career level attainment. This study did not address whether

the respondents were serving as mentors to each other either. The five constructs examined in this study were role conflict, role ambiguity, organizational commitment, career satisfaction and commitment, as well as perceived sex discrimination. These constructs were adapted from other scales used and those scales were tested for reliability. A limitation of note is that the final study only checked for face validity in its pilot stages. Blackhurst's statistical analysis examined differences between women who had mentors and women who did not through the use of a one-way analysis of variance (ANOVA). The ANOVA did not take into account any possible concomitant variables such as age or job placement (e.g. entry level to senior administrator). Based upon the responses of these individuals, this may have played a role in explaining some of the variability in responses.

Gibson's study (2006) had similar conclusions to Blackhurst in terms of the benefits of mentoring for women in higher education. Gibson's study however, focused on faculty women in higher education and was a Phenomenological qualitative study in which nine women faculty were interviewed about their experiences. Although Gibson and Blackhurst found similar implications, these studies were quite different in nature. The women in Gibson's study ranged from instructors to full tenured professors. They were faculty members mostly in the Social Sciences (with one exception of a Business faculty member). The respondents in Gibson's study benefited from their mentoring relationships. Gibson concluded that mentoring was so important that it should be considered as part of the requirement in the tenure and promotion process. Overall, Gibson believed that mentoring can serve as a great tool for equality in higher education.

Shore, Toyokawa, and Anderson (2008) also completed a recent study of faculty and graduate student mentoring relationships. In their study, the researchers contended

that reciprocity is not something that is always ethically attainable between mentor and protégé (Shore, Toyokawa & Anderson). Their study pointed out that often times, protégés lack the maturity to understand or maintain a reciprocal relationship with mentors. This study examined level of academic research and areas of ethical dilemmas that might come into play in a relationship as well as gender and cultural expectations (Shore, Toyokawa & Anderson). An interesting finding of this study was the responsibility it placed on mentors for clarifying their expectations of reciprocity in the mentoring relationship. The researchers felt that mentors should provide direction and clarity to the mentoring relationship. Shore et al., similar to Blackhurst (2000) and Gibson (2006) raised major concerns regarding gender dynamics in mentoring relationships. The relationships examined by Shore et al. were exclusively research apprenticeship mentoring where faculty members were in a senior position to their mentees both in age and title.

Several other studies address faculty and student mentoring specifically (Pfister, 2004; White & Anttonen, 2007; Williams, Levine, Malhotra & Holtzheimer, 2004). Pfister (2004) studied college student athletes' transition to college and reported differences between students who were peer mentored and those who were mentored by faculty. Consistent with other findings, students with more faculty interaction and mentorship felt as though they had a more supportive social network and transition to college than their peers (Pfister). One of Pfister's recommendations for future study is support of mentoring programs for college athletes. Yet, it is important to note some key limitations to this study. The researcher noted potential bias due to her professional role at the institution where the study took place. At the time of the research, the author was serving as the coordinator of mentoring programs for athletes and was personally

invested in the success of the program. Additionally, the narrow scope on athletes at one Division I institution indicate that the study's findings are not necessarily generalizable to a larger population or even to student athletes at non-Division I institutions.

White and Anttonen (2007) focused on the faculty perspective of the faculty to student mentoring paradigm. This study placed its emphasis on the individuals developing and implementing the mentoring programs. This study was important because it addressed the mentors' own "mentoring histories" (p. 434). On average the study participants were in the field of higher education for 25 years. The findings of the study revealed that the quality mentoring histories was by far the most critical factor to mentors' success with their students. Mentors who participated in mentoring relationships prior to serving as mentors for college students brought more comprehensive sets of mentoring strategies to their mentoring relationships (White & Anttonen). These skills that were specifically identified included having care and empathy for students, taking risks, being creative and flexible and having a sense of humor. This study provided valuable insights into why mentors experiences should be examined further. Through the reflection of their own mentoring history, this study argued that mentors' experiences affected their current mentoring relationships. White and Anttonen's research did not include students' perception of the mentoring relationships with the faculty members in the study.

There are also several studies geared specifically toward faculty/student mentoring relationships. One study already discussed at length in this literature review raised the important point of awkward power dynamics in mentoring relationships (Wallace, Abel & Ropers-Huilman, 2000). Students are often unaware of power dynamics in mentoring relationships (Wallace, Abel & Ropers-Huilman). Power

dynamics are usually felt more by students in informal relationships because these relationships are much more ambiguous and undefined (Wallace, Abel & Ropers-Huilman).

Williams, Levine, Malhotra, and Holtzheimer (2004) examined psychiatry faculty mentoring many different types of students in the academy. Through focus group analysis of mentees and faculty mentors, the researchers explored definitions of mentorship and the qualities that made up good mentors and mentees. One interesting finding was that students viewed their faculty mentors as “combination of a supervisor and a friend” (p. 113). Likewise, faculty mentors thought of their work as an important relationship and a cross between parenting and therapy. Mentors identified qualities and expectations of their mentees that reflected the hierarchical nature and teacher-student relationship of their mentoring program. They expected their mentees to be open to feedback, proactive, and willing to learn. Mentees sought mentors whose personalities were compatible with their own and mentors who were good listeners. Mentees saw their mentors as guides in helping the students complete their programs successfully. This study revealed that time need to develop these relationships was a key obstacle to successful faculty student mentoring. Potential mentors had a great number of responsibilities in addition to mentoring that prevented them from providing the highest quality mentoring to students. Some important limitations of this study include the study’s population consisted of faculty and resident students in psychiatry. A limit to generalizability of this study is its population. Psychiatry is generally regarded as a helping field in which students and faculty may have been more in tune to their needs than undergraduate students (Williams et al.).

Quality of mentoring relationships can depend on many different factors and situations; duration of this relationship is generally not a criterion for establishing quality (Rosser, 2006; Sosik & Godshalk, 2005). Other factors that may impact quality of mentoring relationships include format, processes, purpose, personality pairings, gender, race, and socio-economic differentials or similarities between the mentor and mentee (Ragins & Cotton, 1999; Rosser, 2006). Any one of these factors can make a mentoring relationship more or less effective in addition to two key factors of gender and race.

Mentoring Related to Gender

Gender adds another dynamic to the mentoring relationships (Holmes, 2005; Goh, Ogan, Ahuja, Herring & Robinson, 2007; Kram, 1985b; Ragins & Cotton, 1999; Ragins & McFarlin, 1990; Scandura & Ragins, 1993; Shore, Toyokawa & Anderson, 2008; Sosik & Godshalk, 2000). Kram (1985b) pointed out that there are potential problems in cross-gendered relationships. Female mentees who were younger and subordinate to their male mentor found it “difficult to develop a sense of autonomy and independence in their interactions” with their mentor (p. 105). Men and women in cross-gendered relationships reported “anxiety” and “confusion” due to possible tensions and closeness that might develop with having a mentor of the opposite gender (Kram, 1985b, p. 105). Over twenty years after Kram’s (1985b) study, Shore et al. discussed these potential mentor-protégé problems specifically in male mentor and female protégé relationships including sexual attraction and exploitation. Shore et al. also identified problems with mentors failing to relate to the concerns of their protégés and underestimating those individuals.

Other recent studies also support that assertion and cite gender as a potential obstacle in mentoring relationships (Blackhurst, 2000; Gibson, 2006; Wallace, Abel,

Ropers-Huilman, 2000; White & Anttonen, 2007; Williams, Levine, Malhotra & Holtzheimer, 2004). Women faculty and students in higher education alike especially feel the lack of other female mentors (Blackhurst; Gibson; Wallace et al.; White & Anttonen; Williams et al.). Blackhurst and Gibson both argue that mentoring can be a valuable vehicle for social equity in higher education. Both studies expose the need for women to be mentored for success to achieve the same levels of pay and status as their male counterparts (Blackhurst & Gibson). Goh et al. (2007) pointed out the importance of women having mentors in male dominated fields. Women benefited “through the sharing of experiences and advice on how to navigate in a male-dominated environment, a female mentor or role model can improve a student’s self-efficacy” (Goh et al., p. 20). In other words Goh et al.’s found that women with mentors had a higher self-efficacy than their male counterparts. This dynamic described in Goh et al. study have not been tested when exploring the broader population of students in higher education where gender ratios are vastly different then in solely the information technology fields. In terms of relating the literature to this research study, it is helpful to note that women make-up the majority of students in college (Eagly, Johannesen-Schmidt & van Engen, 2003; Sax & Arms, 2008).

Ragins and Cotton (1999) examined the dynamics of mentor relationships in terms of same-gendered relationships and cross-gendered relationships. The researchers studied the differences in psychosocial outcomes between same-gendered and cross-gendered mentoring relationships (Ragins & Cotton). The psychosocial outcomes observed included acceptance, confirmation, counseling and friendship. . The study hypothesized that there would be a significantly higher level of “psychosocial outcomes” for same-gendered relationships (Ragins & Cotton, p. 533). Although this overall hypothesis could not be supported by the statistical analysis of the data, there were some

key findings related to gender. Male mentees paired with female mentors were less likely to state that their female mentors accepted them into the mentoring relationship (Ragins & Cotton). Additionally female mentees paired with male mentors were less likely to engage in friendship behaviors with their mentors (Ragins & Cotton). These findings are congruent with earlier studies on mentoring and gender which pointed out that male students avoid female role model relationships (Erkhut & Mokros, 1984; Ragins & McFarlin, 1990).

One explanation for the above findings could be that males and females generally mentor in different ways (Sosik & Godshalk, 2000). Men and women mentors employ different mentoring strategies with their mentees (Sosik & Godshalk). Male mentoring strategies tend to be more direct in nature including procedural coaching and providing corrective and approving feedback (Holmes; 2005; Sosik & Godshalk). In contrast, female mentoring behaviors tend to be more indirect (Holmes; 2005; Sosik & Godshalk). These mentoring strategies are more appreciative and relational. It is important to take note of these differences and keep them in mind when looking at leadership and gender (Holmes; Sosik & Godshalk).

Through a review of the literature, gender seems to be an important area for future study especially in related to cross-gendered mentoring relationships. The reviewed literature seems to suggest several avenues for future research including exploring whether there are differences in outcomes for different gender groups, how men and women define mentoring, and gender dynamics in mentor-mentee relationships.

Mentoring and Race

Similar to gender, race and ethnicity can potentially have an impact on mentoring relationships. For example, Budge (2006) argued that students from underrepresented backgrounds have been excluded from traditional mentoring. The researcher contends that mentoring has only been available to people from already privileged backgrounds (Budge). From this standpoint, race, ethnicity, and perceived cultural differences can effect mentoring relationships (Blackhurst, 2000; Budge; Givres, Zepeda & Gwathmey, 2005). In Blackhurst's study outlined earlier, women of color and white women had different mentoring outcomes. Women of color in mentoring relationships experienced a higher level of discrimination than their white peers. Wallace, Abel, and Ropers-Huilman (2007) noted that students in cross-racial mentoring relationships benefited from being challenged to think critically about an identity different than their own. However, racial and gender matching was not an intentional component of their original study (Wallace, Abel & Ropers-Huilman).

Givres, Zepeda and Gwathmey (2005) found that students who were in mentoring relationships with persons identified as the same race as them, were more engaged in their learning environment. The researchers also found that mentoring has the potential to be a powerful tool for women and students from underrepresented communities in higher education (Givres et al.). Givres et al.'s study focused on mentoring as a mechanism for retention for undergraduate students, graduate students, and junior faculty members of color. The researchers examined mentoring programs specifically targeted toward these populations (Givres et al.).

Conversely, other studies' findings were inconclusive in terms of race and gender dynamics in mentoring relationships (Goh et al., 2007). One notable example is Goh et

al.'s (2007) study of students in Information Technology related fields discussed earlier in this chapter. The researchers did not find race or gender to be factor in students' successful self-efficacy outcomes. The research acknowledges that the unconvincing nature of the research on race and ethnicity show that it is an important and necessary area for future research in mentoring.

Age Differences and Peer Mentoring

Age may also play an important role in mentoring relationships. Unlike traditional mentoring relationships, peer mentoring relationships involve a level of reciprocity and collaborative benefits for the both the mentor and mentee that may be different than in traditional mentoring relationships (Kram, 1985b; Kram & Isabella, 1985; Zachary, 2006). Peer mentoring relationships have the power to be more impactful on students because the students proximity in age with one another (Astin, 1993; Forbess, 2007). Research suggests that peers have a great level of influence over other peers (Astin; Newcomb, 1962). In addition, research showed that students' participation in peer mentoring relationships has a long history on college campuses (Jacobi, 1991; Kram & Isabella; Lahman, 1999).

Peer mentoring as a concept does not necessarily fit into the hierarchical structure of an older experienced individual mentoring another individual who is less experienced. One might assume that upper-class men and women are the students engaging in peer mentoring on college campuses; yet this might not be the case. There have been very few studies on peer mentoring in college and very little is known about who is engaging in peer mentoring behaviors (e.g. students class standing and age). Smith's (2008) pilot study of a formal peer mentoring program in Canadian higher education placed upper class students in the role of academic mentors in classrooms settings.

Smith's findings were inconclusive and not generalizable to a larger sample or necessarily to higher education in the United States. Another peer mentoring study focused on training first-year students to become peer mentors (Clark, 2005). The purpose of training first year students as mentors was to get them involved and to create a social safety net for students from underrepresented backgrounds. Forbess' (2007) study on peer mentoring utilized returning at-risk students to mentor incoming students. This study provided important knowledge to clarify which students were engaging in peer mentoring and how class standing was potentially a dimension of that relationship.

Another important study that should not go unnoticed is Baker's (2001) study of mentoring among midshipmen at the United States Naval Academy (USNA). Baker explored many dimensions of the mentoring relationships among midshipmen at the Naval Academy and found that "peers were rated as the most likely mentors" in relation to professors, coaches, company officers, and chaplains (p. 60). In other words "peers were significantly preferred" as mentors to other types of mentors (p. 45). This finding echoes the work of Kram and Isabella (1985) because peer mentors were most utilized and trusted due to their "close interaction with one another" at the academy (Baker, p. 60). Furthermore, Baker states that "younger midshipmen have little or no concept of what life at the Academy or in the Navy is like, they look to more senior midshipmen as role models of how to behave in the Academy" (p. 60).

Additionally within Baker's (2001) extensive study on mentoring at the USNA, fourth year students were more likely to have had a significant mentor during their time at the Academy. Also, age was a factor for most midshipman in that within this study 96.5% of respondents with mentors reported having a mentor older than themselves and 3.5% reported having a mentor younger than themselves (Baker, p. 45). Furthermore,

45% of the students who had mentors in their time at the USNA served as mentors themselves (p. 45). Through a chi-square analysis, Baker determined that student who had mentors were significantly more likely to mentor other students.

Although Baker's (2001) research population is narrowly generalizable to the experiences of students at military academies, it provides a model for research on mentoring relationships in higher education. Themes of class year and age dimensions of peer mentoring relationships emerged from Baker's research. The limitation of Baker's research is that is not generalizable to college students' experiences at non-military institutions.

It is important to note that none of the above studies directly relate to the population that was used in this study; however, the information included in these studies has important implications for the future of mentoring. In her article *Improving the Mentoring Process* Kram (1985a) stated that mentoring relationships do not always reach their fullest potential. Perhaps this potential Kram referred to could include leadership outcomes.

Leadership

Overview of Leadership

In the last twenty years or so, colleges and universities have been called upon to develop leaders who will make a positive difference in the world (Dugan & Komives, 2007; Astin, 1996). Leadership is a very difficult construct to define because it can take many different forms and can be defined in many different ways (Kouzes & Posner, 2002; Northouse, 2004). This portion of the chapter will discuss relevant information regarding the dependent variable of leadership self-efficacy, as well as provide a backdrop for a better understanding of leadership. It is important to note that there are

many different definitions of leadership. This research study defines leadership broadly within the framework of the Socially Responsible Leadership Scale and the Social Change Model as “a relational and ethical process of people together attempting to accomplish positive change” (Komives, Lucas & McMahon, 2007, p.29; HERI, 1996; Tyree, 1998). In addition it is important to point out Astin and Astin’s (2000) definition of a leader as any individual “regardless of formal position – who serves as an effective social change agent” (p. 2). This definition shows the potential for anyone to engage in leadership (Astin & Astin; Komives, Lucas & McMahon).

Leadership Self-Efficacy

The construct of leadership self-efficacy has two major components. Bandura (1995) created the construct of efficacy, which is defined as an individual or groups’ belief in their own capacity to accomplish a task. Leadership self-efficacy is thus, an individual’s belief in his or her own capacity to engage in leadership. The root of efficacy for an individual is one’s “striving for control” over one’s life (Bandura, 1997, p. 1). Self-efficacy can serve as an important predictor for outcomes, because confidence in one’s ability to complete a task leads to a higher probability that the task will be completed (Bandura, 1997; Drechsler & Jones, 2009). Leadership self-efficacy has only been used as an outcome in studies in the past decade (Fincher, 2008; Komives, Lucas & McMahon, 2007). However, as a construct, efficacy is cited more widely in higher education (Bulloch, 2007; Goh et. al, 2007; Kinzie, Thomas, Palmer, Umbach & Kuh, 2007). To better understand leadership self-efficacy, it is important to discuss the nature of Bandura’s self-efficacy construct and what contributes to a student’s self-efficacy to accomplish a task.

According to Bandura (1997) there are factors that influence the creation of strong efficacy. The first and most influential way of creating strong efficacy is through a “*mastery experience*” (p. 3). A mastery experience consists of people’s successes in completing specific tasks. It is especially important to note that failures, just like successes can be as equally as impactful. Failures contribute to a negative self-efficacy. The next most influential way is through *vicarious experiences*. Bandura describes these as viewing “social models...seeing people similar to themselves success by perseverant effort raises observers’ beliefs that they, too, possess the capabilities to master comparable activities” (p. 3). In other words, through watching a role model, with whom a student relates to or to whom he or she feels similar, a person can feel more confident in his or her abilities to complete a task. The third influential factor is *social persuasion*. This element takes the form of verbal encouragement which contributes to a person’s belief that he or she “possess the capabilities to master given activities” (p. 4). The final and fourth influence is *physiological and emotional states in judgment* of people’s own capabilities. This influential factor can take many forms. For one student, it might be an interpretation of his or her adrenaline kicking in. That student can interpret the adrenaline in very different ways; as something that will enhance his or her abilities to complete a task or perhaps as a sign of weakness and stress. To make sure physiological and emotional states enhance self-efficacy rather than hinder it, an individual should take care of himself or herself physically, emotionally, and mentally, by getting into shape, reducing stress, and correcting “misinterpretations of bodily states” (p. 5). Misinterpretations of bodily states can make the difference in a person interpreting his or her body as strong or weak. These four factors mainly impact an individual’s efficacious beliefs and can apply to any task, including engaging in leadership.

Leadership for Social Change

In 1996, a group of leadership educators who referred to themselves as the Ensemble developed the Social Change Model for Leadership Development (SCM) (HERI, 1996; Kezar, Carducci & Contreras, 2006). The SCM was developed to highlight the need for undergraduate students and future leaders to work toward social justice and change (Astin & Astin, 2000; Kezar, Carducci & Contreras). The SCM builds upon the foundation that “anyone” can act as a leader as long as that individual engages as a “social change agent” (Astin & Astin, p. 2). Additionally, within the SCM, leadership is seen as “a process, not a position, requiring individual commitment to empowerment, and collective action” (Kezar, Carducci & Contreras, p. 143). The core values of this type of leadership demonstrate social responsibility as leadership for social change (Tyree, 1998).

The SCM is divided into three levels of seven core values that begin with the letter C (HERI, 1996; Kezar, Carducci & Contreras, 2006; Tyree, 1998). The seven C’s are also referred to as “critical values” and are embedded in the three levels of SCM (HERI). The three levels are not hierarchical; rather development in one critical value can lead to changes in other values. The three levels are individual values, group process values, and community and societal values (HERI, Kezar, Carducci & Contreras; Tyree, 1998). The individual values relate to personal qualities that contribute a group’s ability, purpose or function (Bonous-Hammarthm, 1996). The individual values are “consciousness of self, congruence, and commitment” (HERI; Kezar, Carducci & Contreras, p. 142).

The next level is the group process values and relates to of how people work together towards positive change (Bonous-Hammarthm, 1996). The group process values

include: collaboration, common purpose, and controversy with civility (HERI, 1996; Kezar, Carducci & Contreras, 2006 p. 142). The third level is community and societal values which includes citizenship and change as core values (HERI; Kezar, Carducci & Contreras, p. 142). The community and societal values level includes all of society and is the positive change to which the individual and groups are working (Bonous-Hammarthm).

Tyree (1999) recognized the need for educators to link the theory of SCM to practice and created an instrument to provide leadership educators with a measure to assess leadership development in their students. Tyree's instrument was called the Socially Responsible Leadership Scale (SRLS) and it measures the seven C's of the SCM in a practical way (Tyree, 1998). The SCM "conceptualizes leadership as a process for social change" and the SRLS "operationalizes this theory" (Tyree, pp. 7-8). The core of the MSL instrument is based upon Tyree's SRLS (Komives & Dugan, 2005).

Leadership Related to Gender

A great deal of literature has been published on how men and women engage in leadership differently and a likely link between gender and leadership beliefs. Over the past two decades Eagly, Johannesen-Schmidt and Engen (2003) have published a great deal of literature on this phenomenon. For example Eagly et al. conducted a meta-analysis examining how men and women differ in their leadership styles. The framework that emerged from their and the work of others' research consisted of three typologies for leadership: transformational, transactional, and laissez-fair leadership styles (Avolio, Bass & Jung, 1999; Eagly & Carli, 2003; Fels, 2004; Northouse, 2004; Rosener, 1990; Sosik & Godshalk, 2000).

Rosener (1990) published an influential article in the *Harvard Business Review* addressing the differences in how women lead. The study was prompted by the International Women's Forum (IFW). The findings of the study concluded that men and women define leadership differently, "men are more likely to use power that comes from their organizational position or formal authority....women, on the other hand, describe themselves in ways that characterize 'transformational' leadership" (p. 120). The transformational leadership described includes collectively working with subordinates towards a common goal. The women in the study were more focused on making sure others felt involved and included rather than on their own power and authority. Rosener also noted that it was important for women leaders to enhance the self-worth of others.

Rosener' (1990) findings have been echoed by the work of Eagly et al. (2003) through the work of meta-analysis of the Multifactor Leadership Questionnaire (MLQ). The MLQ was developed by Avolio, Bass and Jung (1999) to measure transformational, transaction, and laissez-faire leadership (Bass & Avolio, 1990; Northouse, 2004). Transformational leadership includes characteristics of motivating and respecting others, clear optimism about the future, openness and encouragement of new perspectives for problem solving, and the mentoring of others (Avolio, Bass & Jung; Bass & Avolio, 1990). Transactional leadership is more based upon a rewards system for good performance (Avolio, Bass & Jung; Bass & Avolio). Workers lose points by failing, and the leader does not intervene unless absolutely necessary. Laissez-faire leaders are not involved during critical junctures of an organization (Avolio, Bass & Jung; Bass & Avolio).

Eagly et al. (2003) found key gender differences utilizing the MLQ scales. Female leaders tended to be more transformational than their male counterparts. Women also

incorporated components of transactional leadership such as the rewards system into their leadership styles. Men scored higher on transactional and laissez-faire leadership styles which tend to be more hierarchical in nature. These types of leadership styles can reflect how men and women may define leadership and success different. In an article in the *Harvard Business Review* entitled “Do women lack Ambition” Fels (2004) explored the phenomenon and perception that women lack ambition to seek higher positions and salaries in the business realm. Fels pointed out that in fields that are dominated by women, such as higher education, women have made great strides toward equality. In corporate positions however, women tend to underestimate their abilities. Fels suggested that the phenomenon of underestimation or under-reporting is not limited to women in corporate America alone.

In terms of studies specifically related to higher education, one key finding is that women report their leadership differently than men (Dugan & Komives, 2007; Kezar & Moriarty, 2000; Whitt, Pascarella, Elkins, Marth & Pierson, 2003). It may not be that women necessarily have less leadership ability than men, but they may view leadership and themselves differently. Sax and Arms (2008) study shows that women generally report lower self-confidence on assessments. This finding along with more current research on women and men in leadership positions contradicts earlier research such as the work of Posner and Brodsky (1994).

Posner and Brodsky (1994) contended that gender does not make a difference in the effective practices of leaders. The researchers conducted two separate studies of men and women using the Leadership Practices Inventory (LPI). After conducting a t-test to compare group means, the researchers deduced that gender did not matter in relation to leadership. It can be inferred from the study, that underreporting was not an issue.

However, it is important to note the population of Posner and Brodsky's analyses was one fraternity and one sorority. In addition, the sample within the fraternity and sorority included only the executive board officers of the organizations. These students were already in leadership positions. This study cannot be generalized to the broader scope of undergraduate students and must be examined with caution.

More recent research concluded that there are significant gender differences in leadership among college students. Dugan and Komives (2007) found that women and men differed on their report of the seven C's of the social change model and leadership self-efficacy. Additionally male students reported higher levels of leadership self-efficacy in general on the MSL (Dugan & Komives). However, women reported higher levels of leadership in terms of the SCM items (Dugan & Komives). The lower reporting of leadership self-efficacy for women is similar to the underestimation that Fels (2004) referred to in her article.

Other important studies regarding gender point to women at women's colleges having higher leadership confidence than their peers at co-educational institutions (Kinzie et al., 2007). An important supposition for this finding is that women at women's colleges are more engaged in leadership because there are no males with whom to compete. Furthermore, women at women's colleges have more women role models, because women occupy most leadership roles (Astin & Leland, 1991; Kinzie et al., 2007).

Another recent study conducted by Sax and Arms (2008) utilized another national data set, the Corporative Institutional Research Program (CIRP). Sax and Arms noted that there are gender differences and there are differences related to class standing. The researchers noted that gender differences continue to exist in higher education despite

women dominating college enrollments (Sax & Arms). The researchers noted an important observation regarding pre-college and college leadership and involvement (Sax & Arms). Women tended to be much more involved than male students in co-curricular activities prior to college (Sax & Arms). Yet when women arrive on campus the difference in their involvement compared to male students in co-curricular activities is virtually non-existent (Sax & Arms). This phenomenon is not a recent development in higher education and supports the research practice of examining the interaction effects of class standing and gender (Astin & Leland, 1991; Sax & Arms).

Leadership and Class Standing

Bandura's (1995) construct of self-efficacy implies the more time spent in a college environment, the higher potential for more opportunities to engage in leadership. Thus, the literature suggests that students with a higher class standing (i.e. seniors compared to freshman) have more opportunity for building leadership self-efficacy (Bandura). This theory echoes Astin and Astin's (2000) assertion that "students find it difficult to lead until they've experienced it" (p. 2). Furthermore, Pascarella and Terenzini (2005) contend that students change over the course of their college experience. An important component of the change that occurs in college is student development, as well as maturation effects (Astin, 1993). Baker's (2001) study provided a framework to discuss class standing. In the study, the researcher found that in terms of class year, that most peer mentors were fourth year students (Baker). Additionally, younger students, especially first year midshipmen, looked to older students and individuals as leaders (Baker). That said, this research study acknowledges that there is a lack of literature on class standing.

Mentoring and Leadership

Some of the key connections between mentoring and leadership have been alluded to in previous sections of this review of the literature. Mentoring and leadership have experienced evolutions in definitions in the past twenty years moving from more hierarchical structures to more egalitarian and reciprocal models (Komives, Lucas & McMahon, 2007; Kram, 1985a; Kram, 1985b). Integral to mentoring and leadership is Bandura's (1997) construct of self-efficacy. Mentoring others can serve as a mastery experience which can increase self-efficacy. Mentees can also participate in a vicarious experience by witnessing peers engage in leadership and mentoring.

Initial findings from the MSL also conclude that mentoring is important to students' leadership development in terms of SCM and leadership self-efficacy (Dugan & Komives, 2007). Furthermore, mentoring is a component of transformational leadership (Eagly et al., 2003; Rosener, 1990; Sosik & Godshalk, 2000). Zachary (2006) articulates the potential relations between mentoring and leadership because students who serve in peer mentoring groups are more self-directed and are learning important facets of leadership in the process of mentoring and being mentored. White and Anttonen (2007) contend that mentoring fosters leadership by encouraging individuals to be advocates for themselves and others.

However, the stronger argument for the relationship between mentoring and leadership can be found in the grounded theory of the Leadership Identity Model (LID) (Komives, Collins-Shapiro, 2006; Komives et al., 2005; Komives et al., 2006). Mentoring is an important component at several stages of students' leadership development (Komives et al., 2005; Komives et al., 2006). Early in students' leadership development, students become aware that leadership is taking place (Komives et al.,

2005; Komives et al., 2006). Adults and elder peers serve as models and mentors that encourage students to make meaning of leadership experiences (Komives et al., 2005; Komives et al., 2006). However, later on in a students' leadership development, students become mentors "to enhance the leadership capacity of newer members" in an organization creating "a leadership pipeline" similar to the one created for them (Komives et al., 2005, p. 607). This stage of leadership development is known as "generativity" where students recognize their own capacity for leadership and start to engage in behaviors for a purpose greater than themselves (Komives et al., 2006, p. 411).

Baker's (2001) research study, previously described in this chapter, provided an important link between mentoring and leadership. Baker noted that the mission and purpose of the USNA is to develop leaders. Baker contends that mentoring is an integral component to the process of developing as a leader. The findings included evidence that students with mentors were more likely to hold leadership positions on sports teams or in co-curricular activities (Baker). Additionally, students who were mentored sought out other peers to mentor. Again, it is important to state that Baker's study is not generalizable to a larger population outside of military academies because of differences in the structure of curriculum and by the very nature of military service versus other types of collegiate experiences (Baker).

Summary of the Literature

For the most part, the connection between mentoring and leadership development is uncharted territory. The studies included in this literature review alluded to the potential for greater understanding of the relationship between peer mentoring and leadership. Through the in-depth review of literature, the researcher revealed a clear gap in the mentoring literature with regard to leadership development. This literature review

demonstrated the gap in pertinent research regarding peer mentoring for college students and leadership outcomes, despite the extensive practice of peer mentoring taking place on college campuses (Kram & Isabella, 1985). In the discussion of leadership, leadership self-efficacy was identified as an important construct for measuring people's confidence in their leadership abilities and its use as a predictor for leadership outcomes. Through the discussion of gender, it was established that men and women differ in how they engage in leadership and mentoring. This was important to note because the findings of this study have the potential to show how gender is a factor specifically in peer mentoring behaviors. There were clear apertures in understanding throughout this literature review, namely conclusive findings on class year, as well as the connections between leadership and mentoring. The purpose of this research proposal is to increase the knowledge base regarding these areas of study which lacked conclusive literature and scrutiny. Chapter Three includes the methodology for how this study was conducted.

CHAPTER 3: METHODOLOGY

Chapter Three provides an overview of the methodology that was used to conduct this research study. It includes a restatement of the purpose of this study and the research questions, the research hypotheses, a brief overview of the Multi-Institutional Study of Leadership (MSL), the sampling strategy, a description of instrumentation for the study, a description of how data was collected, and a description of how the data was analyzed

Purpose of the Study, Research Questions and Hypotheses

The purpose of this study was to gain greater understanding of leadership self-efficacy outcomes as related to college students who engage in peer mentoring behaviors. The study first examined whether there are differences in leadership self-efficacy among students who engage in peer mentoring behaviors and students who do not engage in peer mentoring behaviors. The researcher then investigated leadership self-efficacy outcomes in students who engaged in peer mentoring behaviors by examining possible differences in leadership self-efficacy by gender and class standing. Pre-college leadership self-efficacy was controlled for in all the primary analyses of this study.

To accomplish these goals, the study was guided by the following research questions and research hypotheses:

Question One: Do differences exist in the leadership self-efficacy of two groups of students when controlling for pre-college leadership self-efficacy: (a) those students who served as peer mentors in college, and (b) those students who did not serve as peer mentors in college?

Alternative Hypothesis for Question One Based upon Bandura's (1997) statement that role modeling and mentoring can attribute to one's self confidence in accomplishing a task, the alternative hypothesis is that (a) students who served as

peer mentors will have a higher leadership self-efficacy than (b) students who do not serve as peer mentors (Bandura, 1995; Bandura, 1997). The LID model would also suggest that students at a higher stage of leadership development would have a greater confidence in their leadership abilities (Komives et al., 2006).

$$H_a: \mu'_a > \mu'_b$$

Question Two: Of students who identified as serving as peer mentors do differences exist in the leadership self-efficacy in terms of gender and class standing while controlling for pre-college leadership self-efficacy and examining the potential interaction effects of gender and class standing?

Null Hypothesis for Question Two: Gender The null hypothesis is that there is no significant difference between (a) male students who served as peer mentors and (b) female students served as peer mentors.

$$H_o: \mu'_a = \mu'_b$$

Null Hypothesis for Question Two: Class Year The null hypothesis is that there is no significant difference between class year groups in their leadership self-efficacy (a) Freshmen/first-years, (b) sophomores, (c) juniors, and (d) seniors.

$$H_o: \mu'_a = \mu'_b = \mu'_c = \mu'_d$$

Multi-Institutional Study of Leadership Framework

As stated before, the proposed study is a secondary data analysis of the MSL 2006 national data set. This research study relied on the data from the MSL and therefore it is important to discuss the MSL and its purpose before going into further detail about the methodology specific to this research study. The MSL research team first met in the summer of 2005 (Fincher, 2008). The 19 member research team was comprised of faculty, student affairs practitioners and doctoral and masters students in the College

Student Personnel Program at the University of Maryland (Komives, Dugan & Segar, 2006). The purpose of the MSL was two-fold: to enhance knowledge regarding current college student leadership development in higher education and to link theory and practice in the development of leadership programs at colleges and universities (Dugan, 2008; Dugan & Komives, 2007).

Theoretical Framework of the MSL

The theoretical frame for the MSL is the Social Change Model of Leadership (SCM) (HERI, 1996; Komives, Dugan & Segar, 2006). The MSL researchers based the core of the MSL instrument on the Socially Responsible Leadership Scale (SRLS) developed by Tyree in 1998 (Komives & Dugan, 2005). Additionally the MSL team developed the Leadership Efficacy scale to measure leadership self-efficacy (Dugan & Komives, 2007). In addition, there were 23 pre-college variables and 14 demographic variables (Dugan & Komives). The MSL also contained several scales related to leadership development including appreciation for diversity, cognitive development, and leadership identity development (Dugan & Komives). Some of these scales were used with permission of the National Study of Living Learning Programs (Dugan & Komives; Inkelas & Associates, 2004).

Conceptual Framework of the MSL

The 2006 MSL was a cross-sectional data collection. The instrument was designed to serve causal comparative purposes which are commonly used in the psychology and social science fields (Mertens, 2005). However to incorporate Astin's (1991) Inputs-Environments- Outputs (I-E-O) model described model the research team created quasi-pretest measures for several of the *inputs* in the SRLS and Leadership Efficacy scales (Komives & Dugan, 2005). The quasi-pretests were not traditional

pretests because the MSL is a cross-sectional data collection rather than a longitudinal study (Astin & Lee, 2003). Astin and Lee suggest that cross-sectional data is difficult to interpret which constituted the necessity for some pretest measure. Pascarella (2001) described how “pre-college estimates” self-reported by students were a useful solution to the problem of not having longitudinal data close for the student population one is studying (p. 491). Pascarella (2001) and Gonyea (2005) stated that pretests should be highly correlated with outcome measures. Pascarella also stated that pre-college estimates typically have evidence of a “strong correlation” to collegiate outcomes (p. 491). The literature used to design this study suggested that pre-college leadership self-efficacy would be highly correlated to college leadership self-efficacy.

The quasi-pretests in the 2006 MSL served as the pre-college estimate for the student subjects. On the 2006 MSL there were quasi-pretest measures for leadership self-efficacy (Dugan & Komives, 2007). The quasi-pretests as well as demographic information served as the inputs for the MSL study (Astin, 1970, 1993; Dugan & Komives, 2007). The environments in MSL consist of students’ experiences in college such as engaging in peer mentoring behaviors. The outcomes for the MSL are focused on leadership development. Specifically for this study, the outcome that has been examined is leadership self-efficacy.

Sampling for the MSL

Institutional Sample

The MSL was unveiled and promoted through listservs comprised of faculty and administrators working in student affairs or leadership education (Dugan, 2008). The original institutional sample consisted of 55 campuses that were selected for participation in the MSL (Dugan & Komives, 2007). These institutions were chosen from over 150

institutions that wished to participate in the 2006 MSL study (Dugan & Komives). The 55 institutions were intentionally selected for a diverse sample that would be generalizable to represent the “diverse landscape” of higher education in the United States (Dugan & Komives, p. 11). The institutions were purposefully selected based upon characteristics such as Carnegie classification type, institutional control, and enrollment size (Dugan & Komives). Institution types ranged from Historically Black Institutions (HBCUs), large public research institutions, small liberal arts institutions, community colleges, and women’s colleges. Of the 55 campuses that were chosen to participate, 52 institutions completed the study. Table 3.1 displays an overview of the institution types that participated in the study. For a complete listing of institutions that participated in the MSL 2006 study see Appendix B.

Table 3.1 Institutional Sample Classifications

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

Source: Dugan, Komives & Segar, 2007.

Student Sample for the MSL

Careful protocols were developed for institutions to determine how each institution would draw its student sample for the MSL (Dugan, 2008). These protocols were dependent on institution size (Dugan). A simple random sample of undergraduate students was drawn from the student population of schools with enrollments over 4,000 students (Dugan & Komives, 2007). The number of students in each sample was based upon attaining a 95% confidence interval with a ± 3 margin of error (Dugan, Komives &

Segar, 2007). For institutions with populations less than 4,000 undergraduate students, the entire population was used for the sample (Komives & Dugan, 2005). The research team intentionally oversampled to increase the return rate and mitigate the potential statistical limitations associated with small comparison groups (Dugan, 2008; Krathwohl, 1998). The sample size drawn was 155,716 students and the final sample for the MSL data set was comprised of over 50,000 students ($n = 56,854$) (Dugan, 2008; Dugan & Komives, 2007). The final sample had a 37% response rate (Dugan, 2008). The 37% exceeds the typical response rate for web-based surveys which is approximately 30% (Crawford, Couper & Lamias, 2001).

Among respondents, 94% of the students were full time students ($n = 47,435$). The sample was comprised of 62% female students ($n = 30,960$) and 38 % male students ($n = 19,183$). In terms of race, 24% of the respondents identified as students of color ($n = 2,647$). Table 3.2 provides an overview by gender, class standing, and race/ethnicity of the students who participated in the 2006 MSL study.

Table 3.2 Student Sample Characteristics

<u>Category</u>	<u>Percentage</u>
<u>Gender</u>	
Male	38%
Female	62%
Transgender	<.01%
<u>Class Standing</u>	
First year/Freshman	23%
Sophomore	22%
Junior	26%
Senior	29%
<u>Race/Ethnicity</u>	
Caucasian/White	71.8%
African American/Black	5.2%
American Indian	3.0%
Asian American/Pacific Islander	7.9%
Latino/Latina	4.5%
Multi-Racial	8.2%

Source: Dugan, Komives & Segar, 2007.

Sample for this Study

The sample used for this study was not the entire MSL sample. The sample that was specifically used was taken from the Leadership Identity Development (LID) sub-study questions. The LID sub-study was completed by 18.9 percent of the original

sample of respondents who completed survey instruments ($n = 10,730$). This study further selected only students who identified as male or female and identified as traditional four-year college students ($n = 10,555$). Although this was not the entire MSL 2006 sample, group sizes were still large enough for statistical comparisons (Pallant, 2007). The final sample for this study was comprised of 61.8 percent of female respondents ($n = 6,521$) and 38.1 percent male respondents ($n = 4,034$). The sample also included 22.7 percent freshman respondents ($n = 2,406$), 21.7 percent sophomores ($n = 2,291$), 27.2 percent juniors ($n = 2,879$), and 28.4 percent seniors ($n = 3,001$).

Instrumentation

The 2006 version of the MSL student survey was comprised of 37 questions (Fincher, 2008; Komives & Dugan, 2005). Many of the 37 questions had multiple parts and included entire scales (Komives & Dugan). The MSL team also allowed each participating institution to ask ten custom questions specific to their campuses (Komives & Dugan). In other words, these additional custom questions were questions on the MSL instrument unique to each campus. To reduce burden, many questions included skip patterns so that respondents did not have to read questions that did not apply to them (Crawford, Couper & Lamias, 2001). The 37-item instrument included the Socially Responsible Scale for Leadership (SRLS), the Leadership Efficacy scale, demographic information, as well as scales used with permission from the National Study of Living Learning Programs (NSLLP) (Dugan & Komives, 2007; Tyree, 1998). For more information on the NSLLP please consult Inkelas, Brower, and Associates (2004).

Leadership Efficacy Scale

As previously stated, members of the MSL research team developed the Leadership Efficacy Scale to measure leadership self-efficacy. For the purpose of

ensuring construct validity the MSL team developed the Leadership Efficacy scale after an in-depth study of self-efficacy and leadership self-efficacy constructs (Fincher, 2008; Mertens, 2005). The Leadership Efficacy scale was modified after expert checks by MSL research team members as well as campus liaisons at institutions selected for the study (Fincher, 2008). The scale consists of four items with the stem “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?” The scale’s response pattern is a four point Likert scale exploring students confidence levels from 1 = Not at all Confident to 4 = Very Confident. The Leadership Efficacy scale is utilized twice on the MSL instrument. Item eight is the quasi-pretest measure for pre-college leadership self-efficacy and item 22 is the in college measure for leadership self-efficacy. To view sample questions of the Leadership Efficacy scale and additional MSL questions pertinent to this study please refer to Appendix A.

The Leadership Efficacy scale was used twice in the 2006 MSL as a pre-college quasi pre-test and a college experience up until the time of the survey measure (Komives & Dugan 2005). The scale was piloted in December of 2005 as a web-based survey (Komives & Dugan). The pilot test took place at the University of Maryland and consisted of a drawn sample of 3,411 students with a return yield of 782 usable surveys (Fincher, 2008). The number of respondents was appropriate to conduct principle component factor analyses on the new scales in the MSL (Pallant, 2007). Pallant recommends that there must be a ratio of “at least five cases for each variable” to conduct a factor analysis (p. 185). The pilot reliability was $\alpha = .81$ and the current college measure was $\alpha = .89$ indicating good internal consistency (Fincher, 2008; Pallant, 2007).

For the actual original data collection of the MSL, Cronbach's alpha was found to be $\alpha = .88$ (Dugan & Komives, 2007). Cronbach's alpha was recomputed for this specific sample. The reliability of the pre-test Leadership Efficacy scale was $\alpha = .868$. Cronbach's alpha for the outcome current college measure of Leadership Efficacy was $\alpha = .874$. These alpha scores indicate internal reliability for the Leadership Efficacy scale.

Mentoring Item

Students who engaged in peer mentoring behaviors were identified by their response to one item on the MSL "I spend time mentoring other group members." This question was formatted as a five point Likert scale 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Disagree or Agree, 4 = Agree, 5 = Strongly Agree. The question needed for this study was an affirmative or non-affirmative response pattern otherwise known as a yes or no question. For this study, the researcher collapsed the responses into two categories of students who engaged in peer mentoring (those who responded with either a 4 or 5) and students who did not engage in peer mentoring behaviors (students who responded 1, 2, or 3). The researcher interpreted an agreement of strongly agree or agree as an acknowledgment that the respondent engaged in peer mentoring behaviors. The neither disagree or agree does not indicated an affirmative response along with the strongly disagree and disagree response to the question stem. The limitation of how the question was worded is discussed further in Chapter Five. Information regarding the sample sizes can be found in Chapter Four.

Gender Item

The MSL also contained an item regarding gender status. Respondents were asked "What is your gender?" and given the choice of three responses: 1 = female, 2 = male, or 3 = transgender. In the final MSL sample, the sample of transgender was quite

small compared to the female and male students and therefore was not utilized in this study for comparison purposes. Information on the sample is discussed in Chapter Four.

Class Standing Item

Students' were asked to self-identify with a class standing year near the beginning of the MSL instrument. Students were asked, "What is your current class level?"

Respondents' choice options were 1 = first year/freshman, 2 = sophomore, 3 = junior, 4 = senior, 5 = Graduate Student, 6 = other. This researcher is only concerned with those students who responded as first-years/freshman, sophomore, junior or senior.

Data Collection Procedures for the MSL

The Maryland MSL team was granted Institutional Review Board (IRB) Approval in October of 2005 (Komives & Dugan, 2005). The MSL research team made its IRB documents available to all participating institutions as a level of support for these institutions, as well as a way to expedite and simplify the IRB process at their respective institutions (Fincher, 2008; Komives & Dugan). Due to the large data set, the Maryland team partnered with the Survey Sciences Group (SSG) to handle the data collection. SSG maintained the servers for the secure web-survey site as well as the database for all information collected. The MSL team also worked with each campus individually through a campus liaison to answer any questions regarding data collection and facilitation of the study.

The primary data collection took place between February and April of 2006 (Komives, Dugan & Segar, 2006). Students received an email to their college inboxes from Dr. Susan R. Komives with a link to the secure server with the MSL survey. Each participant was given a randomly generated participant number to ensure that students did not take the survey more than once. Students were required to read a confidentiality

statement and to complete a consent form. Those students who did not consent were exited out of the survey instrument. The survey instrument appeared only to the students who consented to the instrument. SSG ensured confidentiality measures during the data collection by storing students' identifying information separately from their responses (Komives & Dugan, 2005). The average time for students to complete the entire MSL was 20 minutes (Komives & Dugan).

Over the three month data collection period from February to April 2006, reminder emails were sent to students who had initially been selected in the sample but had not completed the survey. The MSL research team provided seven national prizes as incentives for survey completion and in addition they encouraged campuses to implement their own incentive strategies (Komives, Dugan & Segar, 2006). Some of the incentives included gift certificates, dinner with the University President, and tickets to sporting events (Komives & Dugan, 2005).

Data Collection Procedures Specific to this Study

The researcher completed and received University of Maryland IRB approval before any data analyses took place. A copy of the IRB approval is provided in Appendix D. Upon approval of the proposal for this study, the researcher received a copy of the MSL data set from the principal investigator Dr. Susan R. Komives. It is important to note the copy of the MSL data file was missing all school codes and was in SPSS format. The school codes were missing to ensure confidentiality of participants.

Plan for Data Analysis

Upon obtaining the dataset, the researcher began the process of cleaning up the data. The researcher removed any missing cases of students who did not respond to the quasi-pretest Leadership Efficacy scale, the Leadership Efficacy scale, the demographic

information, or the peer mentoring item pertinent to the study. The sample was previously described in the sampling section of this chapter. The researcher ran the dataset and analyses listed below under the supervision of a statistician. The cleaning included removing students who did not indicate a class year, were graduate students or identified as transgender.

Analysis of Question One

To analyze the first research question, “Do differences exist in the leadership self-efficacy of two groups of students when controlling for pre-college leadership self-efficacy: (a) those students who served as peer mentors in college, and (b) those students who did not serve as peer mentors in college” the researcher conducted a one-way analysis of covariance (ANCOVA). The researcher selected an ANCOVA as the statistic for several reasons. The ANCOVA model is used for comparing group means when there is a covariate involved. The covariate is another variable that is related to the outcome. In this study the covariate was pre-college leadership self-efficacy. The covariate did not influence any of the independent variables (Lomax, 2007b). However, prior to conducting the study, the researcher postulated that it may possibly have affected the dependent variable of leadership self-efficacy (Lomax, 2007b). For this quasi-experimental study, the covariate was determined to be a concomitant that affected the results of the outcome variable. The treatment factor is students’ participation in mentoring. In other words, the researcher examined the environmental factor of whether or not students engaged in mentoring behaviors. The outcome that was explored was leadership self-efficacy. The ANCOVA model includes some important assumptions (Lomax, 2007b; Pallant, 2007). Several of the following assumptions were violated in

this study; however the researcher had no way of knowing these violations until after obtaining and examining the data.

The first assumption of ANCOVA includes the levels of measurement for the independent and dependent variables. The independent variable must be a categorical and discrete variable. For this study, there was no information on the amount students peer mentored; they either were in the peer mentor group or not. These two distinct groups were discrete variables. The level of measurement for the dependent variable is required to be a continuous scale and not a discrete category. The Likert scale used in this study meets this level of measurement (Pallant, 2007). The design of the study takes into account the nature of the variables so therefore this assumption was not violated.

Other assumptions addressed the sampling of the study. The ANCOVA model assumes that the research study has a random sampling and independence across observations (Lomax, 2007b; Pallant, 2007). One limitation to the MSL is that the study was not completely random. The assumption of independence across each completed survey instrument was not violated based upon the procedures SSG and participating campuses used to collect MSL data (Komives & Dugan, 2005). In other words, student respondents did not complete the survey instrument more than once, and are independent from each other (Pallant). SSG as well as the MSL accounted for this assumption through careful sampling because a violation of this assumption is very serious (Komives & Dugan).

The assumptions of treatment of covariate measurement, reliability of covariates, and correlations among covariates can be addressed in the overall design of the study (Lomax, 2007b; Pallant, 2007). The assumption of treatment of covariate measurement assumes that the independent variable does not affect the covariate. The covariate for this

study was pre-college leadership self-efficacy, whereas the independent variable consisted of the groups in college. In the example of this study, the discrete groups of peer mentors and non-peer mentors cannot influence a pre-college measure of leadership efficacy because respondents were not members of these groups until they were in college. The assumption of reliability of covariates assumes that the covariate of pre-college leadership self-efficacy must be well validated and reliable. The MSL research team designed the Leadership Efficacy scale through analysis of the efficacy construct, as well through the use as expert checks. A principle components factor analysis was conducted, as well as the Cronbach's alpha test for reliability. Cronbach's alpha was well above .7 and is considered reliable (Lomax; Pallant). Furthermore, this study did not need to address the assumption of correlations among covariates because there was only one covariate being used in the study.

The next set of assumptions was assessed when the researcher began analyzing the data. The violations of these assumptions that took place are discussed in further detail in Chapter Four. One assumption was that the population of these samples was normally distributed otherwise known as the normality assumption. The sample was determined to be within the parameters of normality and therefore the researcher did not alter the statistics used in this study or use non-parametric ANCOVA procedures such as the General Linear model in SPSS (Lomax, 2007b). Special ANCOVA procedures can be implemented to take into account the imbalance that may exist if the sample is not normally distributed. Homogeneity of variance is another important assumption in the ANCOVA model. It assumes that the samples being compared have equal variances. In other words, the variability of each group must be similar in size and make up. In order

to ensure this assumption, the research performed Levene's test for equal variances as a part of the ANCOVA.

The final set of assumptions included linear relationships between dependent variables and covariate, and homogeneity of regression slopes (Lomax, 2007b; Pallant, 2007). An important component of ANCOVA is that there is a linear relation between the dependent variable of leadership self-efficacy and the covariate pre-college leadership self-efficacy. The literature suggested that there was a linear relationship between these two types of variables. The researcher observed that there was not the strongest linear relationship and checked for other types of relationships such as cubic and curvilinear. Neither cubic nor curvilinear relationships were reported and the researcher proceeded with the ANCOVA analysis. Finally, in terms of homogeneity of regression slopes, the ANCOVA model carries the assumption that the relationship between covariate and dependent variable is exactly the same for both groups. This assumption was violated. The researcher determined the violation of this assumption had minimal effect on the final results and the interaction was reported as negligible.

Analysis of Question Two

Questions Two's identity groups were analyzed simultaneously in a two-way ANCOVA. The sample analyzed in these questions was comprised of the students who identified as peer mentors. The assumptions for ANCOVA remain the same from a one-way ANCOVA to a two-way ANCOVA. However, in a two-way model the researcher can include two independent categorical variables. In this analysis, the researcher examined both main effects of gender and class year. The covariate of pre-college leadership self-efficacy and the dependent variable of leadership self-efficacy remained the same. ANCOVA allowed for the analysis of these two groups at once because the

researcher was able to assess if there were any interaction effects between gender and class year. The researcher conducted a two-way ANCOVA rather than two one-way ANCOVAs. As reported later on in Chapter Four, there were no interaction effects. However, if there had been interaction effects conducting two one-way ANCOVAs would misrepresent potentially important part of the variance explained (Lomax, 2007b).

For the analyses of question two, the initial two-way ANCOVA alerted the researcher to any significant differences between groups. However, ANCOVA does not compute where the various differences are and between which groups. Significance was found for class standing groups through the omnibus score of the ANCOVA. The researcher conducted post-hoc pair-wise comparisons to determine where differences were between groups using a Bonferroni adjustment recommended by SPSS and described further in Chapter Four. Additional post hoc analyses were also conducted to normalize the data on gender differences against the national data set. The final analysis was an ancillary analysis which examined whether or not there was significance between having a mentor college and serving as a peer mentor.

Summary of Methodology

In conclusion, this chapter highlighted the rationale for this study, a description of the MSL study, and important details regarding the research design of this study. Chapter Four will provide an overview of the results of the statistical analyses for questions one and two. Chapter Five will conclude this study with a discussion of the results, limitations and important practical and theoretical implications including areas for future research.

CHAPTER FOUR: RESULTS

As stated in Chapter One, the purpose of this study was to gain greater understanding of whether there is a relationship between serving as a peer mentor in college and leadership self-efficacy. This chapter begins with a description of how the statistical assumptions for ANCOVA were checked in the process of this study. The results of question one exploring the potential difference in leadership self-efficacy for peer mentors and non-peer mentors will then be described in further detail. The statistical procedures for the assumptions and results of question two which focused solely on the peer mentoring subset will also be reported. Additionally, several ancillary analyses related to this study will also be discussed in detail. The chapter will conclude with a summary of the findings of this study.

The data was cleaned according to the specifications outlined in Chapter Three. This included starting with the students who responded to the LID sub-study. Of that sub-study, the sample consisted of students who responded to the Leadership Efficacy scale ($n = 10,730$). Of that group, the students who did not identify a traditional class standing category were removed from the sample. Students who identified as transgender ($n = 12$) and those who did not identify a gender classification ($n = 10$) were also removed from the sample for this study. The final sample for this study was 10,555 respondents.

Question One Results

Assumptions of Question One

The researcher checked to see if any assumptions of ANCOVA were violated before moving forward with the analysis. The first set of assumptions for ANCOVA required that the covariate was measured prior to the dependent variable at a point in time and that the covariate is a reliable measure. As described in Chapter Three, the MSL's

design utilized quasi-pretest questions to measure students' pre-college measures of leadership self-efficacy (Dugan & Komives, 2007). Pascarella (2001) described the use of pre-college measures as an acceptable alternative when longitudinal data collection was not available. Additionally the reliabilities were also recomputed for this specific sample and were described in Chapter Three. The reliability for the pre-college Leadership Efficacy scale was $\alpha = .87$ and the reliability for the outcome Leadership Efficacy scale was $\alpha = .87$.

The researcher checked for the assumption of linearity between the covariate and the dependent variable using the scatter plot function on SPSS (Pallant, 2007). The R squared values were reported between .23 and .31 indicating the strength of the relationship between covariate and dependent variable was not a strong correlation. The researcher also checked R coefficients for quadratic and cubic relationships and those types of relationships were not reported. This weak correlation between the quasi pre-test of pre-college leadership self-efficacy and the dependent variable leadership self-efficacy showed a discrepancy from the leadership self-efficacy literature discussed in Chapter Two which suggested a much stronger relationship. The researcher noted this as a limitation and proceeded to check other assumptions related to the research questions.

The homogeneity of regressions slopes assumption was also analyzed and the researcher noted that this assumption was violated. The analysis indicated that there was an interaction between the covariate and dependent variable in terms of regression slopes (Lomax, 2007b). The SPSS output indicated that this interaction was very small with a reported effect size of .006 indicating a negligible interaction. The researcher noted this violation and proceeded with the study.

As discussed in Chapter Three, the researcher described how the mentoring item was transformed from a five-point Likert scale into a dichotomous grouping variable.

Table 4.1 displays a distribution of sample sizes across the five response choices.

Table 4.1 Sample Sizes of Response Item “I spend time mentoring other group members”

Response	N	Percentage
Strongly Disagree	215	2.04%
Disagree	1411	13.37%
Neither Agree or Disagree	4073	38.59%
Agree	4203	39.82%
Strongly Agree	651	6.19%
Total	10555	100%

Results of Question One

Question One restated was “Do differences exist in the leadership self-efficacy of two groups of students when controlling for pre-college leadership self-efficacy: (a) those students who served as peer mentors in college, and (b) those students who did not serve as peer mentors in college?” Based upon an extensive literature review, the researcher chose to examine an alternative hypothesis statement that students who served as peer mentors in college (mentors) would have a higher leadership self-efficacy than students who did not serve as peer mentors in college (non-mentors). The size of the non-mentor group comprised 54 percent ($n = 5,699$) of the overall sample, whereas the mentor students made up 46 percent of the overall sample ($n = 4,856$). Table 4.2 displays the

means and standard deviations for the covariate of pre-college leadership self-efficacy and the dependent variable of leadership self-efficacy.

Table 4.2 Tables of Means and Standard Deviations for covariate of pre-college leadership self-efficacy and dependent variable of leadership self-efficacy

Source	Covariate		Dependent Variable		N
	M	SD	M	SD	
Non Mentors	10.58	2.76	11.71	2.51	5699
Mentors	11.99	2.81	13.34	2.28	4856

Additionally, Levene's Test for Equality of Error Variances was reported as non-significant, indicating the error variances were equal for both groups of mentors and non-mentors. Table 4.3 shows the ANCOVA output comparing differences in leadership self-efficacy among students who served peer mentors and students who did not serve as peer mentors controlling for pre-college leadership self-efficacy.

Table 4.3 One-way Analysis of Covariance summary for mentors and non mentors controlling for pre-college leadership self-efficacy

Source	SS	df	MS	F	Eta Squared
Corrected Model	23507.5 ¹	2	11753.8	2786.9*	.356
Intercept	32707.9	1	32706.9	7755.1*	.424
Covariate	16537.9	1	16537.9	3921.3*	.271
Comparison Group	2903.5	1	2903.5	688.5*	.061

*p < .05

¹ R squared = .346

As Table 4.3 illustrates, there was a significant difference between mentors and non-mentors reported through the line labeled “comparison group”. The eta squared value indicates the effect size of the significance and was reported at .061 or 6.1 percent. Statistically this effect size is considered small (Hinkle, Wiersma & Jurs, 2003). Additionally it is important to note that Table 4.3 indicates that the covariate was significant and explained 27.1 percent of the variance in the dependent variable (Pallant, 2007). This model including the dependent variable and covariate explained 33.2 percent of the overall variance.

The SPSS output also reported estimated marginal means which demonstrated an approximation of the analysis if the covariate was removed and a one-way analysis of variance was implemented (ANOVA) (Pallant, 2007). The ANOVA output reported a significant difference at the .05 level between students who served as mentors and students who did not serve as mentors. The effect size was reported as .06 or 6.1 percent of the variance. Additionally the pair-wise comparisons within the ANOVA indicated a significant difference in leadership self-efficacy of students who served as peer mentors than those who did not. Therefore, the researcher accepts the alternative hypothesis for this question that students who served as peer mentors have higher leadership self-efficacy than students who do not serve as peer mentors in college.

Question Two Results

Assumptions for Question Two

Similar to question one, the assumptions for a two-way ANCOVA were also examined prior to performing the statistical analyses outlined in Chapter Three. The measurement of the covariate remained the same from question one to question two. It is important to note that the sample for question two was a subset of question one’s sample.

Question two focused solely on the sample of students who served as peer mentors ($n = 4,856$). This sample included 60.4 percent female students ($n = 2,932$) and male students were 39.6 percent ($n = 1,924$). Freshman/first-year students comprised 19.7 percent of the sample ($n=958$). Sophomores made up 20.6 percent of the sample ($n = 998$). Juniors made up 27.1 percent of the sample ($n = 1,316$) and seniors made up 32.6 percent of the sample ($n = 1,584$). Table 4.4 indicates the cross-tabulations for students and class standing.

Table 4.4 Gender and Class-year Cross-Tabulations for Mentor Sample

Gender	First-Year	Sophomore	Junior	Senior	Total
Female	573	604	792	963	2932
Male	385	394	524	621	1924
Total	958	998	1316	1584	4856

Note: *Chi-square = .273 and indicated no significant differences across class years of males versus females*

Table 4.4 also notes that a chi-square value was computed to see if there were any significant differences between class standing groups of males versus females. The chi-square test indicated that there were no significant differences between class years of male and female respondents.

Reliability was also checked for the covariate and dependent variable for this sample. The reliability for the pre-college Leadership Efficacy scale was $\alpha = .87$ and the reliability for the outcome Leadership Efficacy scale was $\alpha = .87$. Linearity was also examined and R squared values were reported between .21 and .23 indicated a weak correlation of the covariate and dependent variable for female and male samples. The quadric formula was also tested and did not indicate a quadric relationship. R-squared

values for class standing were reported at .18, .19, .33 and .33. A quadric possibility was also checked and not determined. The homogeneity of regression assumption was not violated for gender. However, homogeneity of regression assumption was violated for class-standing. The effect size of the violation was reported to be small at .01 eta squared. This indicates that for class year, the covariate and dependent variable interacted with each other in a negligible way. This violation was noted and the researcher proceeded with the study.

Results of Question Two

Question two restated: of students who identified as serving as peer mentors, do differences exist in the leadership self-efficacy in terms of gender and class standing while controlling for pre-college leadership self-efficacy and examining the potential interaction effects of gender and class standing? Table 4.5 shows the main effects that were studied for gender specifically including the mean and standard deviations and group sizes.

Table 4.5 Mean and Standard Deviation for Leadership self-efficacy for gender

Gender	Mean	Standard Deviation	N
Female	13.26	2.27	2932
Male	13.45	2.29	1924
Total	13.34	2.28	4865

Table 4.6 shows the main effects that were studied for class-year specifically including the mean and standard deviations and group sizes.

Table 4.6 Mean and Standard Deviation for Leadership self-efficacy for class-year

Class-Year	Mean	Standard Deviation	N
Freshman	12.91	2.27	958
Sophomore	13.15	2.36	998
Junior	13.42	2.19	1316
Senior	13.65	2.25	1584

Levene's test for equality of error variances was processed on the sample groups and no significance was reported. This indicates that the error variances for the dependent variable are equal across all groups and this assumption was not violated (Pallant, 2007).

Table 4.7 shows the means and standard deviations for the dependent variable of leadership self-efficacy for female and male students by class standing year.

Table 4.7 Mean and Standard Deviations for leadership self-efficacy according to gender and class year

Gender	Class	M	Standard Deviation	N
Female	First-year	12.82	2.28	573
	Sophomore	13.13	2.36	604
	Junior	13.24	2.20	792
	Senior	13.63	2.23	963
	Total	13.26	2.27	2932
Male	First-year	13.04	2.26	385
	Sophomore	13.18	2.37	394
	Junior	13.69	2.16	524
	Senior	13.67	2.30	621
	Total	13.45	2.28	1924
Total	First-year	12.91	2.27	958
	Sophomore	13.15	2.36	998
	Junior	13.42	2.19	1316
	Senior	13.65	2.25	1584
	Total	13.34	2.28	4856

Table 4.8 is the two-way ANCOVA summary table for main effects of gender and class year. This shows the primary analysis for question two.

Table 4.8 Analysis of Covariance summary table for gender and class-standing groups while controlling for pre-college leadership self-efficacy

Source	SS	df	MS	F	Eta Squared
Corrected Model	6230.98	8	778.75	198.75*	.247
Intercept	18426.71	1	18426.71	4701.94*	.492
Covariate	5782.64	1	5782.64	1475.56*	.233
Class Year	445.07	3	148.36	37.86*	.138
Gender	8.64	1	8.64	2.20	.000
Interaction	21.38	3	7.13	1.82	.001

*p < .05

As Table 4.8 indicates there were significant differences between two or more class-year groups through showing significance in the omnibus ANCOVA score. Table 4.8 also displays that there was no significance in terms differences between gender groups. Finally, under the title “interaction” there were no interaction effects between gender and class-year. Class-year explained 13.8 percent of the variance, gender explained no part of the variance, and the covariate explained 23.3 percent of the variance in leadership self-efficacy. The overall model explained 37.1 percent of the variance.

In terms of main effects, there were no significant differences found in terms of gender groups. For the first part of question two which examined gender differences the null hypothesis was stated as there is no significant difference in leadership self-efficacy between male students who served as peer mentors and female students who served as peer mentors. Based upon the ANCOVA analysis, the researcher fails to reject the null hypothesis in terms of gender because no significance was found.

In terms of class year, the null hypothesis was that there was no significant difference between class standing groups in terms of the outcome of leadership self-efficacy. As Table 4.8 indicates there was a significant difference found between two or more of the class-standing groups. The researcher then applied multiple comparison procedures to understand which of the class-standing groups actually had significant differences (Norusis, 2008a). Multiple comparison procedures are necessary when examining three or more groups for pairwise significance when significance is found in the omnibus test (Norusis). The data in Table 4.8 under class year is the omnibus test for all four class-standing groups. The research applied the Bonferroni procedure because it was a conservative and recommended post hoc multiple comparison procedure (Norusis, 2008b). In more detail, the Bonferroni procedure simply multiplies the observed significance level by the number of comparisons and is “recommended for a small number of pairwise comparisons” (Norusis, 2008b, p. 154). After determining statistical significance among pairwise groups, the researcher computed the Cohen’s *d* coefficient for effect size using a technique recommended by Thalheimer and Cook (2002). The American Psychological Association (APA) recommends reporting effect size because it indicates the magnitude of a significant difference (American Psychological Association, 2001). Table 4.9 indicates the pairwise comparisons for class-year, including significance, Cohen’s *d*, and percent change.

Table 4.9 Pairwise comparisons of class-standing groups

Class(I)	Class(J)	Mean Diff.(I-J)	Cohen's d	% change
Freshman	Sophomore	-.25*	.12	2%
	Junior	-.56***	.26	4%
	Senior	-.82***	.37	5%
Sophomore	Freshman	.25*	.12	2%
	Junior	-.31**	.13	2%
	Senior	-.57***	.25	4%
Junior	Freshman	.56***	.26	4%
	Sophomore	.31**	.13	2%
	Senior	-.26**	.12	2%
Senior	Freshman	.82***	.37	5%
	Sophomore	.57***	.25	4%
	Junior	.26**	.12	2%

*p < .05

** p < .01

***p < .001

As Table 4.9 indicates, in terms of pairwise comparisons, significance was found between all class year standing groups. However, significance was reported at different levels. Additionally, the Cohen's *d* computations showed that the effect size for each comparison differed as well. The difference between freshman and sophomores, sophomores and juniors, and juniors and seniors were negligible effect sizes. This indicates the magnitude of the differences between group means was very small.

Differences among freshman and juniors and sophomores and seniors were reported to have small effect sizes. The largest difference was among freshman and seniors which was a medium effect size. In addition to reporting effect sizes, APA also recommends reporting confidence intervals as an effective way to report results (2001). Table 4.10 shows the lower and upper bound confidence intervals at a 95% difference.

Table 4.10 Confidence Intervals for Pairwise comparisons for class-standing groups

			<u>95% Confidence Interval</u>	
Class(I)	Class(J)	Mean Diff.(I-J)	Lower Bound	Upper Bound
Freshman	Sophomore	-.25*	-.49	-.01
	Junior	-.56***	-.79	-.34
	Senior	-.82***	-1.04	-.60
Sophomore	Freshman	.25*	.01	.49
	Junior	-.31**	-.53	-.09
	Senior	-.57***	-.79	-.35
Junior	Freshman	.56***	.34	.79
	Sophomore	.31**	.09	.53
	Senior	-.26**	-.46	-.06
Senior	Freshman	.82***	.60	1.04
	Sophomore	.57***	.35	.79
	Junior	.26**	.06	.46

*p < .05

** p < .01

***p < .001

Ancillary Analyses

Ancillary Analysis for Question Two

As stated in the analyses of question two, the researcher found no significant differences in leadership self-efficacy between male and female students who were peer mentors. As an ancillary analysis, the researcher normalized the leadership self-efficacy finding for this study against the entire MSL sample's findings from the 2006 analysis (Dugan & Komives, 2007). This analysis consisted of a conversion of this study's findings of a summation of the Leadership Efficacy scale to a mean score of the Leadership Efficacy scale reported in the 2006 report of findings (Dugan & Komives, 2007). This conversion required the researcher to divide the scores reported earlier in Table 4.5 by the number four (the number of items in the Leadership Efficacy scale). Table 4.11 displays the mean score of Leadership Efficacy by gender for the mentor group and the national findings.

Table 4.11 Leadership efficacy mean scores for student mentors and national scores in terms of gender

Gender	Mentor-Group	National Data*
Female	3.32	3.11
Male	3.36	3.17

**National Data from Dugan and Komives (2007)*

Please note the male and female mentoring groups were embedded data within the overall MSL sample so that significant differences between the mentor groups and that national data could not be computed. However, through observation, both groups of male and female mentors reported a higher mean leadership self-efficacy score than the national

data. Table 4.12 displays a summary of leadership self-efficacy outcome for this study specifically of mentors and non-mentors.

Table 4.12 Leadership self-efficacy outcome for non-mentors and mentors in this study

Group	Mean	Summation
Non-Mentors	2.93	11.71
Mentors	3.34	13.34

Table 4.12 and Table 4.11 display information that the sample of non-mentors specific to this study had a lower leadership self-efficacy than both male and female groups in the national findings.

Additional Ancillary Analysis

While in the process of conducting the study, the researcher recognized that it might be helpful to know whether there was an association between having a mentor in college and being a peer mentor. The 2006 MSL data also contained questions ascertaining whether students had been mentored by student affairs staff, faculty, employers, community members, and other students. The researcher wanted to understand whether there was an association between having at least one mentor in college and being a peer mentor in college. To determine this, the researcher conducted an ancillary post hoc analysis with a chi-square test for independence. The null hypothesis for this question was that there is there is no association between engaging in a mentoring relationship and having served as a peer mentor.

The researcher returned to the same sample from question one ($n=10,555$) which only included male and female students, and traditional four-year college students selected for the LID sub-study. The researcher recoded and recomputed a variable that

created two groups consisting of students who had mentors in college and students who did not have mentors in college. Question 15 on the 2006 MSL instrument asked respondents “at any time during your college experience, how often have you been in mentoring relationship where another person intentionally assisted your growth or connected you to opportunities for career and personal development.” The response pattern for question 15 was never, once, sometimes, many for five sub-questions of student affairs staff, faculty, employers, community members and other students. The word “never” indicated zero mentoring. The other responses were “once”, “sometimes”, and “many” indicated at least one mentoring relationship took place. A sample item of question 15 is located in Appendix A. The researcher collapsed these questions into two distinct sub-groups of students who had been in mentoring relationships and students who had not been in mentoring relationships. The researcher then created the dichotomous variable of students in a mentoring relationship (yes/no) and used the categorical grouping variable from question one of mentors and non-mentors to conduct an analysis. The null hypothesis for this study was that there was no association between being a peer mentor and being in a mentoring relationship. Table 4.13 shows the cross-tabulations of these two categorical groups of mentors/non-mentors and mentoring relationships (yes/no).

Table 4.13 Cross-tabulations of peer mentors/non-peer mentors and engagement in a mentoring relationship

		<u>In a Mentoring Relationship (MR)</u>		
Peer Mentor (PM) Indicator		No	Yes	Total
Non-Mentors	Count	863	4825	5688
	Percent within PM indicator	15.2%	84.8%	100%
	Percent within MR	69.4%	52%	54%
	Percent of total	8.2%	45.8%	54%
Peer Mentors	Count	380	4461	4841
	Percent within PM indicator	7.8%	92.2%	100%
	Percent within MR	30.6%	48%	46%
	Percent of total	3.6%	42.4%	46%
Total	Count	1243	9286	10529
	Percent within PM indicator	11.8%	88.2%	100%

A highlight of Table 4.13 is that 88.2 percent of the sample was in at least one mentoring relationship ($n = 9,286$). Please note that after cleaning the data, there were 26 missing cases from the sample of 10,555 who did not respond to question 15. This reduced the sample for this ancillary analysis to 10,529 students.

The cross-tabulations and the SPSS output of the chi-squared test indicate there was not a violation of the chi-square assumption of minimum cell frequency (Pallant, 2007). Table 4.14 shows the chi-squared test output.

Table 4.14 SPSS output of chi-square test for independence

Test	Value	degrees of freedom
Pearson Chi-square	134.69*	1
Yates Continuity Correction	133.98*	1

*p<.001

Both the Pearson Chi-Square and Yates Continuity Correction indicate that students who have mentors in college are more likely to be mentors to others. The Yates Continuity Correction was implemented to compensate for the Pearson Chi-square overestimate of the actual chi-square value for two by two tables (Norusis, 2008a; Pallant, 2007). Based upon this information, the researcher rejected the null hypothesis that there was no association between engaging in mentoring relationships and serving as a peer mentor. Table 4.15 shows the symmetric measures for chi-square.

Table 4.15 Symmetric Measures of chi-square test for independence

Measure	Value
Phi Coefficient	.11*
Cramer's V	.11*

*p<.001

The symmetric measures in Table 4.15 indicate the effect size of the correlation between the two variables of being a peer mentor and engaging in a mentoring relationship. Both the Phi Coefficient and Cramer's V are the same for two-by-two tables. The Phi Coefficient indicates if a relationship is highly correlated on a scale from zero to one.

Higher correlations are indicated by a Phi Coefficient that is closer to the value of one (Pallant, 2007). The symmetric measures indicate that there is a small correlation between being a peer mentor and engagement in peer-mentoring relationships.

Summary

The chapter described the research analyses conducted to answer the two research questions regarding leadership self-efficacy and peer mentoring. The chapter presented the assumptions for each univariate analysis, as well as important descriptive statistics regarding the samples. To summarize the findings, peer mentors were found to have a significantly higher leadership self-efficacy than non-peer mentors. In the peer mentor sub-group, there were no interaction effects between gender and class-year groups. There were no significant differences between gender groups, however, there were significant differences found between and across all class-standing groups. Additionally, a post-hoc analysis determined that there was a significant association between serving as a mentor and having engaged in a mentoring relationship in college. Chapter Five will include a discussion of these results and overall implications from this study.

CHAPTER FIVE: DISCUSSION

This chapter provides an overall summary of this study. The chapter begins with a restatement of the research problem and research questions, discusses the results presented in Chapter Four, outlines implications for future practice and theory, explores important limitations of this study, and provides conclusions regarding the overall study. As illustrated in Chapters One and Two, there was very little literature regarding outcomes related to students serving as peer mentors. It was important to study peer mentoring relationships and outcomes related to serving as a peer mentor because research showed that peer mentoring relationships are the most common type of mentoring relationship taking place on today's college campus (Kezar, 2006; Kram & Isabella, 1985). However, prior to this study, there was very little research on peer mentoring and leadership abilities. Current student affairs practice suggested that students who mentored others were empowered in their leadership abilities (Barrio-Sotillo et al., 2009). Part of the purpose of this study is to present information to fill in the gap between theory and practice by showing the connections between peer mentoring and leadership.

Restatement of Research Problem

As stated in Chapter One, the purpose of this study was to gain greater understanding of the relationship between peer mentoring and leadership self-efficacy. The researcher first examined whether there were differences in leadership self-efficacy among students who identified as peer mentors and students who do not identify as peer mentors. Furthermore, within the group of peer mentors, this study explored possible leadership self-efficacy differences among gender and class-standing groups. The researcher was guided by two research questions:

Question One: Do differences exist in the leadership self-efficacy of two groups of students when controlling for pre-college leadership self-efficacy: (a) those students who served as peer mentors in college, and (b) those students who did not serve as peer mentors in college?

Question Two: Of students who identified as serving as peer mentors, do differences exist in the leadership self-efficacy in terms of gender and class standing while controlling for pre-college leadership self-efficacy and examining the potential interaction effects of gender and class standing?

Discussion of Results

As presented in Chapter Four the researcher utilized a one-way analysis of covariance (ANCOVA) and a two-way ANCOVA to answer the research questions. Additionally, ancillary analyses were conducted to normalize findings regarding gender and to understand whether there was an association between serving as a peer mentor and having at least one mentor in college. This section will address the findings from these statistical analyses.

Differences between groups of Peer Mentors and Non-Mentors

The researcher utilized a one-way Analysis of Covariance to analyze the first research question. The overall result of the ANCOVA was that there was a statistical difference between the peer mentor group and the non-peer mentor group in terms of leadership self-efficacy. The difference was found to be statistically significant at the p-value of .05. The estimated effect size of this significant difference was found to be .061. In other words, although the peer mentor group had a significantly higher leadership self-efficacy than the non-mentor group, the peer mentoring grouping variable only explained 6.1 percent of the overall variance. Hinkle, Wiersma, and Jurs (2003) point out that with

“sufficiently large sample” sizes researchers are likely to find significance and reject the null hypothesis (p. 270).

That said, this small significance is still important to explore further. The literature described in Chapter Two, made the researcher expect a higher leadership self-efficacy for college students who mentor others. Bandura (1997) described mentoring as a means for individuals to build self-efficacy. Additionally, the Leadership Identity Development Model (LID) suggested that students who mentor others demonstrate a high leadership capacity and are at more advanced stage of leadership development (Komives et al., 2006). In the LID model, students intentionally choose to mentor others in group settings to create the “leadership pipeline” for their peers and to help their peers get invested in an organization (Komives et al., 2005, p. 607). The research described in Chapter Two supports the findings of significance in leadership self-efficacy in students who were peer mentors. However, due to the nature of causal comparative studies, the researcher cannot determine whether students have a higher leadership self-efficacy due to serving as mentors or because as mentors, students gain higher leadership self-efficacy (Krathwohl, 1998; Mertens, 2005). Mertens (2005) cautioned against interpreting causal comparative results as “proof of a cause-and-effect” (p. 146). The interpretation of these results directionality cannot be assumed.

It is important to discuss the result of .061 effect size further. In this model, as previously stated, the ANCOVA found that the comparison group explained 6 percent of the overall variance, leaving 94 percent unaccounted for by the dependent and independent variables. This suggests that perhaps ANCOVA was not the best statistic to analyze the relationship between peer mentoring and leadership self-efficacy and other factors contribute to the outcome of leadership self-efficacy. The low effect size does not

discount the nature of the results; however, it does present some unique discussion areas. The model also demonstrated that the covariate of leadership self-efficacy explained 27.1 percent of the variance and was also statically significant in the model. This can be explained in part due to some of the assumptions of ANCOVA that were violated in this study.

In Chapter Four, the researcher found that pre-college leadership self-efficacy was positively correlated to leadership self-efficacy; yet the correlation was weaker than the literature had suggested. It is helpful to note that the ANCOVA statistic assumes linearity does exist between the covariate and dependent variable and thus the 27.1 percent of variance explained by the covariate is most likely deceiving (Lomax, 2007b). It is likely that due to the linearity assumption violation, the covariate's importance is estimated to have a higher effect on the overall variance than it does in actuality. Another possibility is that pre-college leadership self-efficacy is a factor in terms of outcome leadership self-efficacy but combined with other potential factors. Recall, the discussion in Chapter One regarding how gender plays a role in involvement prior to college (Sax & Arms, 2008). In terms of leadership self-efficacy, pre-college leadership might be very different depending on other input variables for different sets of students. The literature suggested a strong linear relationship between pre-college leadership self-efficacy and college leadership self-efficacy; yet, based upon the findings of this study, the assumption of linearity was at a desired strength of a strong correlation. For the researcher, the finding that pre-college leadership self-efficacy was not a linear predictor of college self-efficacy was an unexpected result of the study. Bandura (1997) wrote that prior experiences build self-efficacy towards future tasks indicating that pre-college leadership self-efficacy would relate to college leadership self-efficacy. That said, the findings cannot dismiss

the importance of pre-college leadership self-efficacy in an outright manner. The weak positive correlation found between pre-college leadership self-efficacy would suggest that pre-college leadership self-efficacy is a predictor for college leadership self-efficacy. The findings show that it is not the only predictor for leadership self-efficacy and that stronger factors related to college leadership self-efficacy may exist.

Additionally, the assumption of homogeneity of regression slopes was also violated which would indicate that was an interaction between the covariate and dependent variable. In other words, at some point the groups' outcomes are different in terms where they fall on the covariate's scores (Lomax, 2007b). This interaction had a reported effect size of .006 eta squared. This effect size is very small and indicates the interaction had a very minimal effect on the outcome. Furthermore, statisticians argue that violation of this assumption is negligible when the groups that are being compared have met the equal variances assumption (Lomax, 2007b).

Gender Differences

The first part of research question two explored gender differences in leadership self-efficacy for student peer mentors ($n = 4,856$). A two-way ANCOVA was utilized to explore this phenomenon and found that there was no statistical difference in means of male and female gender groups in terms of leadership self-efficacy. The sample consisted of students who identified as male as 39.6 percent of the sample ($n = 1,924$) and students who identified as female as 60.4 percent of this sample ($n = 2,932$). This gender breakdown was similar to that of the final entire sample of the MSL where male students made up 38 percent of the final sample and female students made up 62 percent of the final sample (Dugan & Komives, 2007).

The finding of no statistical difference in means between gender groups was unexpected due to the large sample sizes and due to earlier analysis of the entire MSL data which found that male students reported a statistically significant higher level of leadership self-efficacy than female respondents (Dugan & Komives, 2007). In the initial analysis of the entire MSL data in 2007, women reported lower levels of leadership self-efficacy, but higher levels of leadership in terms of the Social Change Model (Dugan & Komives). This current study of a subset of the MSL ($n = 4,856$) showed that for peer mentors there was no significant difference in reporting of leadership self-efficacy between groups of men and women. The trend for this subgroup of peer mentors is inconsistent with the entire MSL sample ($n = 47,435$) (Dugan & Komives). The researcher made several observations based upon this finding that are unique to the peer mentoring group. Komives, Lucas and McMahon (2007) discuss the generativity stage of the LID model as the stage where students feel “interdependent with others” and that mentoring others is an indication of this level of development (p. 397). Mentoring others in this stage of leadership development may, for this group of peer mentors, mitigate gender differences that are typically seen in other parts of the MSL. Moreover, peer mentoring is a very relational action on the part of the mentor and this finding might indicate that peer mentoring as a phenomenon occurs in a similar manner for male and female college students.

In an ancillary analysis reported in Chapter Four, the researcher normalized the data in the gender finding with that of the overall MSL sample. This analysis provided the researcher with a benchmark to discuss the lack of significance difference in leadership self-efficacy of men and women. Both men and women groups of peer mentors had a higher leadership self-efficacy than the men and women in the national

data. This finding is reported with caution, as the sample of peer mentors was a subgroup of the overall data and not a separate sample. The researcher could not run significance tests between embedded data and the greater sample. This finding should be explored further, but is nonetheless important to note.

This finding and the subsequent ancillary comparison to the national data show that students who serve as peer mentors have a higher leadership self-efficacy than their peer counterparts who do not mentor. The research on gender discussed in Chapter Two focused mainly on gender differences in how students mentor and the differences between males and females in mentoring strategies (Holmes, 2005; Sosik & Godshalk, 2000). Additionally, the research pointed to differences in leadership styles and how men and women report leadership (Dugan & Komives, 2007; Eagly et al., 2003). In contrast, this study found no differences between men and women peer mentors in how they reported leadership self-efficacy.

In terms of violations of ANCOVA assumptions, gender groups reacted differently. The homogeneity of regression slopes assumption was not violated for gender, indicating that there was no interaction between the covariate pre-college leadership self-efficacy and the dependent variable college leadership self-efficacy. Similarly to question one, the linearity function was also violated indicating that pre-college leadership self-efficacy was not a strong covariate for college leadership self-efficacy with this sample. The covariate reported an eta squared value of .233 indicating that the covariate explained 23.3 percent of the variance in this model. As stated in question one, this percentage may be deceiving because it assumed that there was a strong linear relationship between the covariate and the dependent variable and for this sample R squared value indicated a weak correlation between these two variables. The

two-way ANCOVA also reported that there were no interaction effects between gender and class year which were analyzed simultaneously.

Class Standing Differences

The second part of research question two addressed differences among peer mentors in terms of class-standing groups. The class year breakdown was 19.7 percent freshman/first-year students ($n = 958$), 20.6 percent sophomore students ($n = 998$), 27.1 percent juniors ($n = 1,316$), and 32.6 percent seniors ($n = 1,584$). In terms of descriptive information, it is important to note that all class years were represented in this sample. Freshman, sophomore, junior, and senior students engaged in peer mentoring in college. In terms of the overall ANCOVA results, the omnibus score showed that there was significance in at least two or more of the class year groups and that the significance had an effect size of .138. This indicates that the class year grouping variable explained 13.8 percent of the variance. The Bonferroni multiple comparison procedures was implemented to assess where there were pairwise comparisons (Norusis, 2008a; 2008b). The Bonferroni procedure indicated that every class standing pairwise comparison was statistically significant. The overall trend in reported group means of leadership self-efficacy was that leadership self-efficacy increased for each class-year as students progressed through college. For example, sophomores had a statistically higher leadership self-efficacy than freshman, and juniors had a higher leadership self-efficacy than sophomores, and so forth.

However, similarly to the analysis of question one, the researcher cautions against only reporting significance. Using a procedure developed by Thalheimer and Cook (2002) the researcher computed the effect sizes for the pairwise comparisons. The largest effect size was between freshman and seniors which had a medium effect size at .37.

The other effect sizes were small and negligible. The result of increased leadership self-efficacy for peer mentors through class standing is in keeping with the literature.

Pascarella and Terenzini (2005) suggest that students have more opportunities for involvement and interaction during the time they spend in college. Another explanation for this increase in leadership self-efficacy is demonstrated by what Astin (1993) calls maturation effects. Furthermore, Astin and Astin (2000) remind us that students change and develop during their time in college. Additionally, it makes sense that the more students master mentoring others, the more self-efficacy these students build toward other factors related to mentoring such as leadership (Bandura, 1995). The results of this study were similar to Baker's (2001) study of USNA midshipmen. Seniors in this study represented the largest group sampled and the largest group of peer mentors. Another important note is that all class-standing groups were represented in the sample of peer mentors. This indicates that students from all class years are engaging in the mentoring of others.

Several assumptions of the ANCOVA model were also violated for this analysis of class standing differences. Consistent with the other findings of this study, the linear relationship between the covariate of pre-college leadership self-efficacy and the dependent variable of college leadership self-efficacy was found to be a weak relationship. The homogeneity of regression slopes assumption was also violated and reported as a small effect size equaling .013 eta squared. As stated with question one, the more serious violation is the linearity relationship between the covariate and dependent variable.

Ancillary Analysis

During the process of the study the researcher that by examining whether there was an association between having at least one mentor in college and serving as a peer mentor, greater understanding would be gained regarding the phenomenon of peer mentoring. The sample for this analysis was the original sample of the study ($n = 10,555$). This sample only included traditional college students who identified as male or female. There were several important descriptive statistics that emerged from this analysis which add to better understanding of the study's overall sample. Descriptive statistics showed that 88.2 percent of the respondents had received some type of mentoring in college and 11.8 percent responded as not having mentoring. Through a chi-square analysis, it was determined that there is an association between having a mentor in college and being a mentor to others. This finding re-iterates Baker's (2001) finding that students who have mentors are more likely to become mentors. However, the Phi coefficient for chi-square indicated that there is a small correlation between having a mentor and serving as a peer mentor. In other words, the relationship was not a strong linear relationship, but there was an association determined. The strength of this relationship between having a mentoring and serving as one should be explored in future research. This study presents the larger picture that mentoring others is a factor in students becoming mentors. However, this study does not show in detail what other factors in the mentoring relationship might contribute to a stronger association between having a mentor and becoming a mentor. Many of these factors were discussed in the review of the literature including the race and gender of the mentors in comparison to the students being mentored (Givres, Zepeda & Gwathmey, 2005; Ragins & Cotton, 1999). Furthermore, the original findings of the MSL suggested that the role of the mentor (e.g.

student affairs professional, faculty) served as predictors for different types of leadership outcomes for students (Dugan & Komives, 2007).

Implications

Theoretical Implications

The results of this study present several important theoretical implications. To address the LID model there were several key findings that should be discussed further. The significantly higher leadership self-efficacy among peer mentors as compared to non-peer mentors is an important indicator that a relationship between peer mentoring and leadership does exist. Additionally, the researcher observed no significant difference among peer mentors in terms of leadership self-efficacy for men or women. This lack of significance is important because it demonstrated that peer mentors are a different population from the overall MSL data. Male respondents typically report a statistically higher leadership self-efficacy than female students (Dugan & Komives, 2007). In the subset of peer mentors, this phenomenon of male students reporting higher leadership self-efficacy (or female student reporting lower self-efficacy) did not take place. Furthermore, the entire sample of men and women peer mentors reported higher leadership self-efficacy than the respondents of the overall MSL sample. The researcher can suppose several possible conclusions from this finding. In the LID model, students engage in a relational form of leadership through mentoring in the generativity stage (Komives et al., 2006). Student mentors feel confident in affirming other students within their organizations for the greater good of the organization as a whole (Komives et al., 2006). Regardless of gender at this stage of leadership development, peer mentoring others has a similar outcome for male and female students in terms of leadership self-efficacy. Additionally, in order to serve as a peer mentor, one must be open to engaging

in this type of leadership. Perhaps the students in the sample engaged in this type of leadership and view leadership in a more relational way, instead of in the traditional hierarchical and positional view of leadership. Additionally, this lack of a difference in leadership self-efficacy poses a potential contradiction to some of the mentoring literature that suggested that men and women mentor differently (Sosik & Godshalk, 2000). Perhaps the differing mentoring strategies for each gender group is not applicable to the college student population. It is helpful to note, that the literature did not discuss peer mentoring relationships.

In terms of Astin's (1999) Theory of Involvement, this study found that students who had mentors in college were more likely to mentor others. The students who have mentors or seek out mentorship opportunities are potentially more involved than their peers who do not have mentors in college. Furthermore, Astin's theory supposes that students who are involved more have more growth and development than other students who are not involved. Involvement is a predictor for student success (Astin). The differences in class-standing especially between freshman students and senior students could be an indicator of opportunities for involvement.

Practical Implications

This study provides important findings for practice. This study echoes the MSL's original finding that "mentoring matters" (Dugan & Komives, 2007 p. 15). Students who mentored others have a significantly higher leadership self-efficacy than students who did not mentor. Future research might indicate whether the group of students who serve as peer mentors is self-selecting due to their high leadership self-efficacy or if the act of peer mentoring builds leadership self-efficacy for those students. Again, the most conclusive finding was the lack of significance among men and women

peer mentors in terms of leadership self-efficacy. This finding shows that the act of peer mentoring separates these students from the rest of the population where gender differences in leadership self-efficacy exist. The findings from this study in terms of gender complicate interpretations of previous research which emphasized gender differences in student involvement (Holmes, 2005; Sax & Arms, 2008; Scandura & Ragins, 1993; Scandura & Williams, 2001). Additionally, as reported earlier, the peer mentoring group generally reported higher leadership self-efficacy than the overall sample of the MSL. Mentoring others potentially increases one's leadership self-efficacy. Moreover, the descriptive statistics in terms of gender and class-standing inform educators on who is mentoring others on college campuses. Restated, this study showed that students from all class years were mentoring others.

The finding of the ancillary analysis exploring the association between having a mentor and serving as a mentor should be discussed further. Although this study explored the outcomes for peer mentors, more research can be completed on mentoring outcomes for students who are mentored. This study suggested that one of the outcomes of being mentored for students was a higher likelihood of mentoring others. As stated earlier in this study, mentoring relationships have benefits for both the mentor and mentee and are reciprocal in nature (Kram, 1985b). It is significant to find that students who are mentored are more likely to mentor others because mentoring has the potential to a very powerful force for positive student outcomes and future generations of students. The findings on higher leadership self-efficacy for peer mentors, gender and class-standing groups paired with the finding that students who have mentors were significantly more likely to be mentors re-iterates the importance of mentoring in higher education.

Educators should take note of where mentoring programs exist and where mentoring programs can be created to benefit from this finding.

Areas of Future Research

There are several important areas for future research with peer mentoring relationships. The non-significant difference between men and women from the peer mentor group prompts several important questions. Future research should be conducted to understand more about this finding and can be approached in several different ways. Research could explore why there is virtually no difference in leadership self-efficacy for men and women peer mentors in college. More information regarding how students are defining mentoring relationships and the strategies they employ to mentor each other through quantitative and qualitative research. Along those lines, future studies need to focus on the nature of peer to peer mentoring relationships. Peer influences are very powerful influences on students (Chickering & Reisser, 1993; Newcomb, 1962; Pascarella & Terenzini, 2005). It would help to know where these mentoring relationships are taking place and in what types of organizations. A potential future study could examine mentorship from the standpoint of involvement in student organizations.

The relationship between having a mentor and mentoring others could be examined further as well. The ancillary analysis raised an important point, that students who have mentors are more likely to mentor others themselves. It would be helpful to know what types of mentoring relationships (e.g. mentoring by an employer, mentoring by student affairs professionals, mentoring by other students) are strong factors influencing students becoming mentors. Also, there are many more reciprocal dimensions of mentoring that can be explored in future studies. Closer examination on the nature of peer mentor and mentee outcomes would be helpful to add to the growing body of

literature on this phenomenon. Additionally, the association between having a mentoring and mentoring others, although significant, was not a strong association. Future research could explore what components of a mentoring relationship might make this relationship stronger one or weaker. Literature showed that race and socio-economic class add important dynamics to mentoring relationships (Blackhurst, 2000; Budge; Givres, Zepeda & Gwathmey, 2005). This is an important area for future study in terms of understanding dynamics of mentoring relationships. Moreover, these factors might potentially affect the strength of the association between having a mentor and serving as a mentor.

Finally, it might be helpful understand why pre-college leadership self-efficacy is not strongly related to leadership self-efficacy in college. This study did find a weak correlation indicating that for this sample, pre-college leadership self-efficacy was not the strongest predictor for college leadership self-efficacy. Perhaps an I-E-O framework including the use multiple variables would help explain more variance (Astin, 1993). Other types of research design might also be important to understanding the relationship between pre-college leadership self-efficacy and college leadership self-efficacy.

Limitations

Limitations in Research Design

At the onset of this study, the researcher recognized several limitations in the research design. The researcher took note of these limitations prior to examining the data in the MSL sub-study. This section will address these limitations including mentoring on college campuses, race and ethnicity, and overall concerns regarding the nature of causal comparative designs.

Mentoring on College Campuses: The purpose of this study was to understand more about peer mentors on college campuses and how mentoring affects their leadership

self-efficacy. This study did not specifically address other types of mentoring relationships in which students were engaged such as mentoring with faculty members or mentoring programs outside of the academic environment (e.g. church youth groups, afterschool programs). This study did not explore students' most significant mentoring relationships and how potential factors within that relationship impact how students mentor others. This limitation was noted in this study and more information regarding these mentoring factors is included in the 2009 MSL survey instrument. This is a very important area for future study and will help guide educators in establishing more meaningful and intentional mentoring programs for students.

The other main limitation with regards to mentoring is that the Kram (1985b) definition was used in an item earlier on the MSL 2006 survey instrument. This item identified a mentor as someone who intentionally assists another in growth or connections to opportunities for career and personal development. This definition is foundational in mentoring literature. Although cited widely in higher education literature, the definition was mostly used in studies regarding faculty mentoring relationships rather than student to student mentoring relationships. Students may have a different perspective and view of what constitutes a mentoring relationship. Additionally, outcomes for peer mentoring relationships might be broader than the outcomes defined in the Kram definition. Future research can be conducted on how students define mentoring and peer mentoring. Moreover, there was the potential for instrument impact on the respondents of the MSL. A mentoring item with the Kram definition appeared prior to the sub-study question used to define peer mentors in this study.

There was also a limitation in how peer mentors were identified on the 2006 MSL survey instrument. It is important to note that there are typically limitations associated with ex post facto design which typically include using an existing instrument and dataset that were not necessarily intended to answer the researcher questions posed in the ex post facto design. This study identified peer mentors as students who “spend time mentoring other group members” (Komives & Dugan, 2005). There was no specific item on the MSL that identified students as “peer” mentors. This study left out students who mentored outside groups and organizations. The lack of knowing all types of student peer mentoring (e.g. academic mentoring, mentoring in afterschool programs) is a definite limitation that affects the overall generalizability to all student peer mentors on college campuses.

Race and Ethnicity Race and ethnicity dynamics in mentoring relationships was a recurring theme of the literature. However, the bulk of the literature addressed student to mentor matching and focused mainly on African American students and Latino students. Table 3.2 listed the group sizes for Caucasian/White students, African American/Black students, American Indian Students, Asian American/Pacific Islander students, Latino/Latina students, and Multi-racial students. The researcher noticed that the group sizes varied and it would have been difficult to conduct a casual comparative study with these groups because the homogeneity of variance assumption would most likely have been violated. Race and ethnicity, especially in terms of mentor to mentee relationships is an important area for future study. The MSL 2009 instrument includes modified items regarding who students relate to as their most significant mentor. Race and ethnicity were included in the consideration of the instrument modifications.

Casual Comparative Design As stated in the result section, casual comparative studies by their very nature include an innate limitation. One of the integral limitations of this study's design was that directionality could not be determined. In other words this design shows non-directional causality (Krathwohl, 1998; Mertens, 2005). For the findings where the researcher determined significant differences, the researcher was unable to extrapolate the direction of the significant relationship. Another potential limitation related to this research design was to transform continuous data regarding amount of peer mentoring into a categorical grouping variable of peer mentors and non-peer mentors. If the researcher had chose to keep the data continuous (i.e. amount of mentoring of others), this study may have yielded different outcomes.

Unforeseen Limitations

Through the process of this study several unforeseen limitations arose. The first set of limitations was unanticipated problems that were due to the original research design of the study. The researcher unintentionally violated several important assumptions of the ANCOVA statistic including the linearity relationship between covariate and dependent variable and the homogeneity of regression slopes assumption. Although, these assumptions did not have a great impact on the overall results of the study and the relationship between leadership self-efficacy and mentoring, they indicate the challenges of a simple research design with few variables. Although significance was found in the first question, only 6 percent of the overall variance was explained by the peer mentoring variable.

The significance of the covariate in that model was deceptive because the ANCOVA model assumed linearity between covariate and dependent variable. Research suggested that pre-college leadership self-efficacy would be a good indicator of college

leadership self-efficacy, the actual R-squared contradicted this hypothesis (Bandura, 1997). To help explain this, the researcher returned to Bandura for a potential explanation. Bandura stated that when measuring pre-college leadership self-efficacy, “the relation between beliefs and action is revealed most accurately when they are measured in close temporal proximity” (p. 67). When measuring causation, the “closer in time” the respondent is to an event or efficacious beliefs the more accurate the understanding of self-efficacy (p. 67). The violation of the homogeneity of regression slopes, although negligible, indicated that pre-college leadership self-efficacy and leadership self-efficacy had different slopes at different sections of the sample. Class-standing and lack of proximity to pre-college measures for groups of students such as college seniors might be one possible explanation for this violation and for the weak association between pre-college leadership self-efficacy and leadership self-efficacy.

Conclusions

The findings of this study show that much more research needs to be explored on the phenomenon of peer mentoring. This study raised important areas for future understanding regarding the peer mentoring phenomenon and leadership development. The inconclusive nature of some of the results with low effect sizes indicate that future research can help understand more about the complex nature of mentoring relationships. The three variables of peer mentoring, leadership self-efficacy, and pre-college leadership self-efficacy provided foundational understanding of the relationship between peer mentoring and leadership, but future research is needed. This study provided key descriptive statistics on which students in college are mentoring others and factors associated with the likelihood of being a peer mentor. Additionally, this chapter highlighted some of the important implications for peer mentoring in college and

demonstrated that students of all class standing levels are engaged in peer mentoring in college. Finally, this study explored leadership self-efficacy as an outcome variable of being a peer mentor.

APPENDIX A:

Sample Items from the 2006 Survey Instrument of the MSL

NOTE: The Multi-Institutional Study of Leadership (MSL) is a copyrighted instrument. For more information on the MSL go to www.leadershipstudy.net

What is your current class level? (Choose One)

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

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

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

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
Faculty never once several many
Employers never once several many
Community members never once several many
Other students never once several many

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

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

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

What is your gender?

- ☐ Female
- ☐ Male
- ☐ Transgender

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

APPENDIX B

List of MSL 2006 Participating Institutions

Auburn University	North Carolina State University
Brigham Young University	Northwestern University
California State University, Northridge	Oregon State University
California State University, San Marcos	Portland State University
Claflin University	Rollins College
Colorado State University	St. Norbert College
Community College of Baltimore County	Simmons College
DePaul University	State University of New York, Geneseo
Drake University	Susquehanna University
Drexel University	Syracuse University
Elon University	Texas A&M University
Florida International University	Texas Woman's University
Florida State University	University of Arizona
Franklin College	University of Arkansas
Gallaudet University	University of California, Berkeley
George Mason University	University of Illinois, Urbana-Champaign
Georgia State University	University of Maryland, Baltimore County
John Carroll University	University of Maryland, College Park
Lehigh University	University of Maryland, Eastern Shore
Marquette University	University of Minnesota, Twin Cities
Meredith College	University of Nevada Las Vegas
Metropolitan State College of Denver	University of New Hampshire
Miami University	University of North Carolina, Greensboro
Monroe Community College	University of North Dakota
Montgomery College	University of Rochester
Moravian College	University of Tampa
Mount Union College	

APPENDIX C

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

IRB APPROVAL



UNIVERSITY OF
MARYLAND

INSTITUTIONAL REVIEW BOARD

2100 Lee Building
College Park, Maryland 20742-5121
301.405.4212 TEL 301.314.1475 FAX
irb@deans.umd.edu
www.umresearch.umd.edu/IRB

January 08, 2009

MEMORANDUM

Application Approval Notification

To: Dr. Susan R. Komives
John Dugan
Jennifer Smist
Paige Haber
National Clearinghouse for Leadership Program/Office of Campus Programs

From: Mary Ann Ottinger, Ph.D. *MAO*
Associate Vice President for Research Compliance and Policy
University of Maryland, College Park

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

Approval Date: January 09, 2009

Expiration Date: July 23, 2009

Application Type: *Addendum/Modification:*
Approval of request, submitted to the IRB office on December 10, 2008, to allow EDCP masters student, Meredith Smith, to use the MSL data for her masters thesis.

Type of Research: Non-Exempt

Type of Review of Addendum: Expedited

The University of Maryland, College Park Institutional Review Board (IRB) approved your IRB application. The research was approved in accordance with 45 CFR 46, the Federal Policy for the Protection of Human Subjects, and the University IRB policies and procedures. Please include the above-cited IRB application number in any future communications with our office regarding this research.

Recruitment/Consent: For research requiring written informed consent, the IRB-approved and stamped informed consent document is enclosed. The expiration date for IRB approval has been stamped on the informed consent document. Please keep copies of the consent forms used for this research for three years after the completion of the research.

Continuing Review: If you intend to continue to collect data from human subjects or to analyze private, identifiable data collected from human subjects, after the expiration date for this approval (indicated above), you must submit a renewal application to the IRB Office at least 30 days before the approval expiration date. If IRB approval of your project expires, all human subject research activities including the enrollment of new subjects, data collection, and analysis of identifiable private information must stop until the renewal application is approved by the IRB.

Modifications: Any changes to the approved protocol must be approved by the IRB before the change is implemented, except when a change is necessary to eliminate apparent immediate hazards to the subjects. If you would like to modify the approved protocol, please submit an addendum request to the IRB Office. The instructions for submitting a request are posted on the IRB web site at : http://www.umresearch.umd.edu/IRB/irb_Addendum%20Protocol.htm .

Unanticipated Problems Involving Risks: You must promptly report any unanticipated problems involving risks to subjects or others to the IRB Assistant Manager at 301-405-7326 or tbell@umresearch.umd.edu, or Dr. Mary Ann Ottinger at maottinger@umresearch.umd.edu.

Student Researchers: Unless otherwise requested, this IRB approval document was sent to the Principal Investigator (PI). The PI should pass on the approval document or a copy to the student researchers. This IRB approval document may be a requirement for student researchers applying for graduation. The IRB may not be able to provide copies of the approval documents if several years have passed since the date of the original approval.

Additional Information: Please contact the IRB Office at 301-405-4212 if you have any IRB-related questions or concerns.

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