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Mentoring influence on socially responsible leadership capacity based on institutional Carnegie Classification

by

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A dissertation submitted to the graduate faculty

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DOCTOR OF PHILOSOPHY

Major: Education (Educational Leadership)

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Ames, Iowa

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DEDICATION

This dissertation is dedicated to the many mentors who have guided me through my own journey in life. Although words cannot effectively express my gratitude, I hope that through my own nurturing of others the time and talent you have invested in me in some way may be repaid.

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they recognize my achievement as one among many of the achievements of thousands of students they have inspired over the decades. Their unending support and interest as I have worked through undergraduate and graduate work is a testament to their commitment to education.

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ABSTRACT

Higher education institutions are being called to provide leaders capable of operating in increasingly complex environments (Astin & Astin, 2000; Daloz Parks, 2005; Longo & Gibson, 2011; Rost & Barker, 2000). As immersion into these complex environments has been found to assist students in developing leadership capacities, mentoring is needed to help support students during these immersion experiences. Researchers have explored how mentoring influences leadership development (Campbell, Smith, Dugan & Komives, *in press*; Collins-Shapiro, 2006; Gleason, 2009; Jabaji, Slife, Komives, & Dugan, 2008), but it is valuable to study mentoring effects within different institution types based on Carnegie Classification, as different environments have different influences on student effects and outcomes. There currently exists a lack of literature in this area.

This post-positivist, quantitative study utilized a secondary data set, the 2009 Multi-Institutional Study of Leadership (National Center for Leadership Programs, 2011) to understand how mentoring and leadership development compare among institutions of different Carnegie Classifications. Respondents in this data set attended 101 institutions in the United States that had responded to an open call in the summer of 2008. A subsample of 57,713 of the original 115,632 cases contained responses related to mentoring for this study. The Multi-Institutional Study of Leadership utilized the Socially Responsible Leadership Scale as its primary scale, which was developed by Tyree (1998) and measures the core values of the Social Change Model.

Seven research questions provided the foundation of the study, which was operationalized in Astin's (1993) Input-Environment-Output (I-E-O) Model. Variables in the study were analyzed utilizing descriptive statistics; inferential statistics, such as analysis of

variance (ANOVA); and multiple sequential hierarchical regression analyses. The findings

of this study provide insightful information for researchers, practitioners, and policy makers.

Understanding how mentoring influences leadership development in different institution

types can help improve practice and provide insight for additional research.

CHAPTER 1. INTRODUCTION

Overview

Today our world faces a lack of effective leadership, and higher education institutions must respond by preparing young individuals to succeed in a time of great complexity (Barkema, Baum, & Mannix, 2001; Bennis, 2007; Lichtenstein, et al., 2006; Rosenthal, Moore, Montoya, & Maruskin, 2009; Sandmann & Vandenberg, 1995). Lichtenstein et al. (2006) found that traditional models of leadership are insufficient in today's world. However, several researchers (Daloz Parks, 2005; Kouzes & Posner, 2007; Rosenbach & Taylor, 1998; Zimmerman-Oster & Burkhardt, 2000) have found leadership to be a practice both teachable and learnable. Therefore, institutions of higher education are being called upon to help prepare these leaders through innovative leadership education design (Astin & Astin, 2000; Daloz Parks, 2005; Longo & Gibson, 2011; Rost & Barker, 2000).

Many institutions have answered this call to help prepare the leaders of tomorrow. The number of leadership programs in higher education has grown significantly in recent years. Roberts (2003) estimated these that approximately 800 leadership programs exist in higher education, while Mangan (2002) suggested that approximately 900 programs exist. While the growth in number of programs suggests a commitment to preparing future leaders, Dugan, Komives, and Segar (2008) found that research in effective leadership education has not kept the same pace. In addition, as institution types differ in focus, a varied leadership outcomes may be found at these institutions. Of particular importance to this study, a number of researchers (Dugan, 2006; Dugan & Komives, 2007; Dugan et al., 2008) have found socially responsible leadership capacity to be an outcome of students' higher education experience. The Social Change Model, developed at the Higher Education Research Institute

(HERI, 1996) at the University of California, Los Angeles, found that "a leader is one who is able to effect positive change for the betterment of others, the community and society" (p. 16). The outcome of the Social Change Model is the understanding of how one can create positive social change. This chapter serves as the foundation for a study to understand how institutions support students as they learn how to provide effective leadership, to create social change and have a better understanding of leadership and self (Cleveland State University, n.d.).

As immersion into complex environments has been found to assist students in developing leadership capacity, mentoring is needed to help support students during these experiences. Although researchers have explored how mentoring influences leadership development (Campbell et al., *in press*; Collins-Shapiro, 2006; Gleason, 2009; Jabaji et al., 2008), little research has focused on how this occurs within different types of institutions. This is important as institutions can have different influences on student effects and outcomes. In this study, Carnegie Classification was utilized to represent institution type. The 2009 Multi-Institutional Study of Leadership (MSL) included responses from students attending institutions categorized by the Carnegie Foundation for the Advancement of Teaching as associate's, baccalaureate, master's, doctoral/research, and research (very high) institutions. The study sought to further the understanding of how mentoring influences leadership capacity by comparing these influences by institutional type.

Statement of the Problem

There is a need today for effective leadership in a diverse society (Bennis, 2007; Daloz Parks, 2005; Rosenthal et al., 2009; Uhl-Bien, Marion, & McKelvey, 2007). Leaders must have the skills that will help them succeed at decision-making in complex situations.

Institutions of higher education have a responsibility to help educate students in leadership behaviors that will help them create positive change (Astin & Astin, 2000). Often, students in higher education institutions learn leadership skills through hands-on experiences in which they work through the decision-making process.

To help students succeed as they learn these skills and behaviors, institutions must find ways to support students, and mentoring is one method through which institutions can provide this support. Campbell et al. (*in press*) found that leadership capacity of students is enhanced through mentoring. However, since institutions of different Carnegie Classification have been found to have differing results on student effects and outcomes (McCormick, Pike, Kuh, & Chen, 2009; Pascarella, Cruce, Wolniak, & Blaich, 2004; Seifert, Drummond, & Pascarella, 2006; Seifert, Pascarella, Goodman, & Salisbury, 2010; Umbach & Kuh, 2006), it was important to explore how mentoring functions to support leadership development in these various institution types. Caution is warranted as Pike, Kuh, and Gonyea (2003) found it can be difficult to determine whether difference in outcomes is due to institutional differences or to differences in students' backgrounds. This study was an extension of the work of Campbell et al. (*in press*).

The problem addressed in this study was the lack of research related to understanding how mentoring may influence leadership capacity differently in various institution types. The study sought to advance the research by Campbell et al. (*in press*) through utilization of the institutional type as a grouping variable. In addition, several additional input and environmental variables were studied to determine their predictive abilities on leadership capacity development. Understanding how mentoring influences leadership capacity in institutions of different Carnegie Classifications informs future research, as well as aids

policy development within and between institutions and in the development of additional mentoring theory.

Purpose of the Study

The purpose of this post-positivist, quantitative study was to test the hypothesis that different institutional types influence student effects and outcomes differently. This was contextualized in this study in the way that various types of mentoring influenced leadership capacity, utilizing the 2009 Multi-Institutional Study of Leadership data set. The dependent variable (socially responsible leadership capacity) was measured by the Socially Responsible Leadership Scale, and the independent variable (mentoring) was measured by questions within the 2009 Multi-Institutional Study of Leadership related to mentoring for leadership empowerment and mentoring for personal development. Additional input and environment variables were included in the model.

Research Questions

The research questions guiding this study were

1. What are the demographic characteristics of students who responded to the 2009 Multi-Institutional Study of Leadership survey? To what extent do they differ by Carnegie Classification?

2. What are the demographics of students' most significant mentor (gender, race, and role)? To what extent do they differ by Carnegie Classification?

3. Are there statistically significant differences in the precollege measure of socially responsible leadership, based on Carnegie Classification?

4. Are there statistically significant differences in type of mentoring, for leadership empowerment or personal development, based on Carnegie Classification?

5. Are there statistically significant differences in pretest measures and outcome
   measures related to individual measures of spirituality, based on Carnegie
   Classification?

6. Are there statistically significant differences in the omnibus measure of socially
   responsible leadership, based on Carnegie Classification?

7. To what extent do demographic characteristics and precollege leadership,
   environmental variables related to mentoring, college experiences, and institution
   type being attended influence socially responsible leadership capacity? What are the
   unique effects based on Carnegie Classification?

Theoretical Framework

Social Change Model of Leadership

The Social Change Model provided a theoretical framework for this study. This
Model was developed by Astin and Astin at the HERI and has gone through several revisions
since (Cleveland State University, n.d.). This model served as the theoretical underpinning
of the Multi-Institutional Study of Leadership (MSL) instrument, which utilized the Socially
Responsible Leadership Scale (Campbell et al., *in press*). Within this model, leadership is
considered a process, and the outcome is an understanding of how one can facilitate positive
change, as well as have increased self-knowledge and leadership competence (Cleveland
State University, n.d.). The Higher Education Research Institution (1996) shared the
following thoughts on leadership:

> …We regard a leader as one who is able to effect positive change for the betterment
> of others, the community, and society. All people, in other words, are potential
> leaders. Moreover, the process of leadership cannot be described simply in terms of

the behavior of an individual; rather, leadership involves collaborative action grounded in the shared values of people who work together to effect positive change. (p. 16)

As indicated in Figure 1.1, three components or dimensions form the foundation of the Social Change Model. These are group values, individual values, and society/community values. These three components contain the Seven Cs of leadership. The eighth C stands for change, the culminating product of the other components. The three Cs of group values are collaboration, common purpose, and controversy with civility. Consciousness of self, congruence (behavior consistent with one's beliefs), and commitment are all Cs of the individual values component. Citizenship is the C of society/community values. Finally, the ability to create positive change is the outcome (Cleveland State University, n.d.).

The arrows connecting the various dimensions are an important element of the model. As stated in Cilente (2009), "In the Social Change Model, each level interacts with and influences the other and each value is interconnected to others" (p. 65). Therefore, the arrows in the diagram represent this dynamic relationship. The Social Change Model inspired the dependent variable within this study, which was socially responsible leadership capacity, represented by an omnibus socially responsible leadership variable.
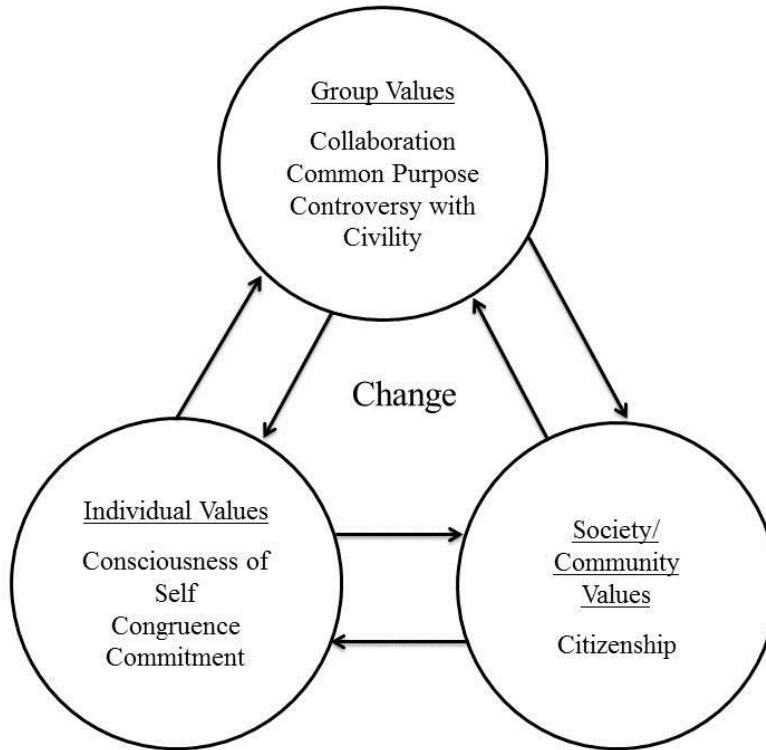
Figure 1.1. Social Change Model of Leadership adapted from Cilente (2009). This figure displays the Seven Cs of the Social Change Model; consciousness of self, congruence and commitment within the individual values dimension; collaboration, common purpose and controversy with civility within the group values dimension; citizenship within the society/community values dimension; and an understanding of change in the center of the model. The arrows within the figure exhibit the dynamic relationship between the elements of the model.

Mentoring theory

Mentoring theory also informed the development of the study. Ragins and Kram (2007) found a need for additional theories to inform mentoring research. The authors also found that most mentoring research has utilized the theoretical work of Kram (1985), who studied the functions of mentoring relationships career settings. Although the authors found the need for an updated theoretical framework, Kram's (1985) theory is an integral part of this study with the hope that this theory can be furthered in understanding how it relates to socially responsible leadership.

Johnson, Rose and Schlosser (2007) found that "It was Kathy Kram's model of *mentor functions* (Kram, 1985) that brought theoretical clarity and programmatic research to the field of mentoring" (p. 52). Kram (1985) posited, and research has confirmed two primary functions of mentoring, career and psychosocial support. Johnson, Rose and Schlooser (2007) defined career functions as "mentor behaviors aimed at preparing and promoting a protégé for career development" (p. 52) and psychosocial functions as "mentor behaviors aimed at helping and supporting a protégé on personal/emotional levels" (p. 52). This theory of mentoring functions informs the construction and use of two composite independent variables to predict leadership outcomes.

Institutional type differences

Numerous researchers (McCormick et al., 2009; Pascarella et al., 2004; Seifert et al., 2006; Seifert et al., 2010; Umbach & Kuh, 2006) have found differing student outcomes by institutional type. In their study of 2000 and 2005 Carnegie Classifications, McCormick et al. (2009) found differences in institutional effects related to student experiences and outcomes but cautioned that much of this variation may relate to student-level background differences. This research motivated the use of institutional type, or Carnegie Classification, as an environmental variable in the regression analysis. This allowed for an understanding of if and how different types of institutions affect student outcomes differently in mentoring and leadership capacity development.

Theory operationalized

As indicated, the theoretical framework of this study was motivated by HERI's (1996) Social Change Model, Kram's (1985) theory related to mentoring functions, and institutional type differences. If institutional type did affect the environment in which

students develop, relationships, and mentoring relationships in particular, may vary by institutional type. In addition, since several researchers have found differences in student outcomes based on institutional type, the outcome of socially responsible leadership capacity may also vary by institutional type. The research questions in this paper, as well as the statistical techniques and variables utilized in answering these questions, were driven by these concepts.

Methodology

To answer the above research questions, a post-positivist, quantitative study methodology was employed. The overarching conceptual model driving this study was Astin's (1993) Input-Environment-Output (I-E-O) Model. Astin (1993) found that "the basic purpose of the model is to assess the impact of various environmental experiences by determining whether students grow or change differently under the varying environmental conditions" (p. 7).

The data for this study came from the 2009 Multi-Institutional Study of Leadership: "an annual, national survey of leadership development among college students" (Multi-Institutional Study of Leadership, 2009, p. 1). This instrument utilized the Social Change Model as the theoretical framework for understanding leadership outcomes and was also established utilizing Astin's (1993) I-E-O Model.

Chapter 3 will delve further into the variables and corresponding statistical techniques utilized to answer the respective research questions. Variables in the instrument included demographic and classification variables, precollege experiences, pretests, campus experiences (environment), and outcome measures (Multi-Institutional Study of Leadership,

2009). To answer several of the research questions, not only were observed variables utilized, but factors emerging from the scales composing the instrument were also utilized.

The Statistical Package for the Social Sciences (SPSS) Version 18 was utilized in conducting the analyses needed to answer the respective research questions. To answer the first two research questions, simple descriptive statistics were calculated utilizing cross-tabulations. Research questions three through five required use of inferential statistics to answer questions about the larger population. Specifically, to answer research questions three through five, a one-way analysis of variance (ANOVA) was utilized, with follow-up post-hoc tests. To answer the final research question, several sequential hierarchical regressions were utilized, one for each Carnegie Classification. The variables were entered in temporal order, as informed by the theoretical framework and the I-E-O Model conceptual framework.

Significance of the Study

This study is significant to researchers as it builds on past studies related to student effects and outcomes based on institutional type. Currently, there is no research related to how mentoring and leadership capacity may vary between different types of institutions. As indicated, institutions of higher education are increasingly being called upon to nurture students to create effective change in the 21st century. Therefore, research into practices that can help support students as they work to succeed in complex environments is a worthy endeavor. Additionally, this study advances the research of Campbell et al. (*in press)* through the inclusion of institutional type as a grouping variable rather than as a control and the inclusions of additional input and environmental variables.

This study builds a foundation upon which additional research related to mentoring and leadership development may be explored. In particular, the study supports past literature regarding input and environmental factors that promote the leadership development of students within higher education. The study provides information valuable for practitioners within higher education working to support students as they face challenges of a complex world, as well as policy-makers who can help provide resources to prepare effective leaders who have the capability of creating positive change.

Definition of Terms

Carnegie Classification: "leading framework for recognizing and describing institutional diversity in U.S. higher education for the past four decades" (Carnegie Foundation for the Advancement of Teaching, 2011, para. 1).

Environment: "the various programs, policies, faculty, peers, and educational experiences to which the students is exposed" (Astin, 1993, p. 7)

Input: "the characteristics of the student at the time of initial entry to the institution" (Astin, 1993, p. 7)

Mentoring: reciprocal relationship involving recognition, support, challenge, inspiration and accountability (Daloz Parks, 2008)

Output: "the student's characteristics *after* exposure to the environment" (Astin, 1993, p. 7)

Socially Responsible Leadership: "measures the core values of the Social Change Model: consciousness of self, congruence, commitment, collaboration, common purpose, controversy with civility, citizenship, and change" (Multi-Institutional Study of Leadership, 2009, p. 2)

Summary

As institutions are being called upon to help provide leadership in the 21st century, it is important to conduct research focused on how this goal may be achieved. This chapter provided an overview of the study to understand how mentoring functions to foster socially responsible leadership capacity and how this relationship may vary by Carnegie Classification. The study fills a void in the literature and provides information to guide the practice of administrators and leadership educators and future research in this area. Chapter 2 will present a review of the literature, Chapter 3 will discuss the methodology and Chapter 4 will provide the results of the study. Finally, Chapter 5 will present a discussion of the results, implications, and conclusions.

CHAPTER 2. REVIEW OF THE LITERATURE

Overview

As indicated in Chapter 1, the focus of this study was to understand how mentoring influences the development of socially responsible leadership capacity. More specifically, the study sought to understand how this relationship varied among different institution types. An expansive amount of literature provides the foundation for the development of this study. This chapter reviews that literature.

This chapter will begin with a review of the literature related to leadership, including the need for leadership in a changing society and the evolution of thought related to leadership. A discussion of leadership education research and the role of higher education in the preparation of tomorrow's leaders follows. The literature related to mentoring is outlined, followed by a section focused on the relationship between mentoring and leadership development. The chapter will include a discussion of institutional type differences and background information on the Carnegie Classification. It will conclude with further exploration of the theoretical framework that informed the study's development.

Leadership

Leadership has for ages drawn the attention of researchers, theorists, and practitioners alike. A plethora of literature related to leadership throughout history can be found, depicting how leadership has evolved throughout the ages. Wren and Swatez (1995) described this evolution in the 20th century, "The study of leadership in the twentieth century has been characterized by increasing levels of sophistication" (p. 246). Longo and Gibson (2011), in their discussion of new leadership thought, stated this change in thought "flows from a growing disillusionment with traditional top-down, hierarchical leadership models

that dictate to, rather than work with, real people in real communities trying to find solutions to real problems" (p. 3). Although this section will provide a brief overview of how leadership thought has evolved, primary focus is placed on current theoretical perspectives, especially those most relevant to this study.

Crisis of leadership

Bennis (2007) claimed that the study of leadership has never been as critical as in today's age. He suggested that in order to successfully solve today's issues, the study of leadership must be a collaborative effort. Many researchers (Allen, Stelzner, & Wielkiewicz, 1998; Barkema et al., 2001; Burns, 1995; Daloz Parks, 2005; Kezar, 2009; Lichtenstein et al., 2006; Longo & Gibson, 2011; Rost & Barker, 2000; Sandmann & Vandenberg, 1995; Uhl-Bien et al., 2007) have agreed that currently available frameworks of leadership prove insufficient in today's society, which is characterized by extreme complexity. For example, Sandmann and Vandenberg (1995) found that "the philosophy of leadership implicit in leadership development programs of the past is no longer adequate for dealing with the complex problems inherent in communities and organizations today" (p. 1). Daloz Parks (2005) echoed these sentiments:

> As our world becomes more complex, diverse, and morally ambiguous, leadership trainings and programs and executive coaching has appeared on the scene. Yet there remains a gnawing awareness that our prevailing myths and many of our assumed practices of leadership match neither the central perils nor the finest aspirations spawned by the forces of dramatic change – affecting every society, institution, corporation, agency, organization, community, neighborhood, task force, or project team. (p. 2)

It is, therefore, no surprise that researchers have found that the confidence those in the United States have in their leaders is disparaging. Rosenthal et al. (2009) found that despite an increase in confidence in 2009, the trust Americans have had in their leaders is still below the average. However, it seemed that Americans remained hopeful about the future of the country's leadership, and that with the right leadership in place, the nation could effectively address issues it faces. Burns (1995) shared the following regarding the importance of a shared understanding of effective leadership:

> Without a powerful modern philosophical tradition, without theoretical and empirical cumulation, without guiding concepts, and without considered practical experiences, we lack the very foundations for knowledge of a phenomenon…without such standards and knowledge we cannot make vital distinctions between types of leaders; we cannot distinguish leaders from rulers, from power wielders, and from despots. (p. 10)

Complexity that characterizes society

As indicated, many researchers (Allen et al., 1998; Barkema et al., 2001; Bennis, 2007; Daloz Parks, 2005; Kezar, 2009; Lichtenstein et al., 2006; Longo & Gibson, 2011; Rost & Barker, 2000; Sandmann & Vandenberg, 1995) have found that the complexity of today's society necessitates a new type of leadership. Lichtenstein et al. (2006) found that the modern world needs a new type of leadership different from that of the hierarchical view frequently valued in past eras. Uhl-Bien et al. (2007) shared the important role that knowledge plays in the economy today, and how this knowledge era requires a different type of leader than that of the industrial age, supporting the ideas of Lichtenstein et al (2006). Leaders must understand how complex systems work and affect one another, for as Allen et

al. (1998) found, today's society is as complex as ecological environments—all things are connected. To utilize another metaphor, Daloz Parks (2005) shared that in today's world, leadership is like a chess match; leaders must have the ability to see the whole and the interconnectedness of the issues at hand. In addition to the challenges frequently experienced with interconnectedness, Barkema et al. (2001) found the speed of change to be ever quickening.

Change in leadership thought

Some important trends in the way leadership is conceptualized are important to recognize. The first trend in leadership thought evolution is that leadership is a practice that can be both taught and learned. Several researchers (Daloz Parks, 2005; Kouzes & Posner, 2007; Rosenbach & Taylor, 1998; Zimmerman-Oster & Burkhardt, 2000) have explored the ways in which this teaching and learning can be accomplished. The idea that leadership can be learned has led to another paradigm shift, that "the potential for good leadership is widely dispersed in our society, not limited to a privileged few" (Rosenbach & Taylor, 1998, p. 2).

As indicated earlier, leadership thought has also evolved from the way it was conceptualized in the industrial age. As opposed to that conceptualization, Rost and Barker (2000) found that

> In the postindustrial world, the concept of leadership must serve the general needs of
> society rather than the exclusive needs of corporations or of corporate executives.
> Post-industrial leadership must be inclusive rather than exclusive; it must focus on the
> community rather than on the elite. Above all, post-industrial leadership must reject
> the simplistic, cause-effect, dyadic view of the leadership relationship and replace it

with a view that incorporates the complexities of social processes and the pluralistic

nature of global society. (p. 5)

Cilente (2009) supported this view of leadership and emphasized the importance of

collaborative and multidirectional leadership. This understanding of leadership requires

adaptive leadership, a leadership approach researched by a number of scholars (Kezar, 2009;

Kezar & Carducci, 2007; Lichtenstein et al., 2006; and Uhl-Bien et al., 2007). These

researchers have found adaptive leadership to be useful in approaching complex issues

through collaboration.

Another shift in thought relates to terminology utilized in the discussion of

leadership. Several researchers (Day, 2001; Lichtenstein et al., 2006; Roberts, 2003) have

suggested that we must shift from thinking in terms of leader development to thinking in

terms of leadership development, a change from viewing leadership as an individual skill.

Roberts (2003) suggested that in order to effectively develop leadership capacity in students,

educators must stop seeing students' multiple learning experiences as unrelated, but rather,

help these students to more effectively integrate their numerous experiences.

Related leadership paradigms

Several leadership paradigms have frequently been cited as effectively addressing the

needs of a complex society and are pertinent to this study. In addition, each of these

paradigms has been tied to mentoring practices. Several researchers (Daloz Parks, 2005;

Kezar, 2009; Kezar & Carducci, 2007; Lichtenstein et al., 2006; and Uhl-Bien et al., 2007),

have explored the ways in which adaptive leadership can help meet the challenges of a

complex society. Daloz Parks (2005) devoted her work, *Leadership Can Be Taught*, to an

examination of how one leadership educator, Ronald Heifetz, has embodied and taught

adaptive leadership in the classroom utilizing the case-in-point approach. Daloz Parks (2005) stated of adaptive leadership, "…adaptive challenges require new learning, innovation, and new patterns of behavior. In this view, leadership is the activity of mobilizing people to address adaptive challenges–those challenges that cannot be resolved by expert knowledge and routine management alone" (p. 10).

Another paradigm frequently associated with mentoring is transformational leadership. Sosik, Godshalk, and Yammarino (2004) found that those who embodied transformational leadership had success in motivating people to go beyond their self-imposed boundaries and to expand their goals. Specifically related to mentoring, Sosik and Godshalk (2000) found that "mentor transformational behavior was more positively related to mentoring functions received than transaction contingent reward behavior" (p. 365).

A third paradigm associated with positive outcomes and related to mentoring is that of Kouzes and Posner (2007). These researchers found five practices that emerged through examination of individual experiences of personal best–leadership experiences. The researchers suggested that leadership is learned and that anyone has the ability to lead. Posner (2009), utilizing this leadership framework, found that students who participated in leadership development during college did improve in their embodiments of the five practices.

The evolution of leadership theory discussed in this section has logically had an influence upon the way leadership is taught within higher education. In addition, the number of leadership programs has grown exponentially in recent years. This growth, and the pedagogy through which leadership is taught, are explored within the next section of this chapter.

Leadership Education

The number of leadership education programs on college and university campuses has expanded dramatically in recent decades. Mangan (2002) found that within the past several decades, leadership programs in higher education have increased in number to approximately 900. She also found that these programs "range from workshops to full degree programs" (para. 3). Roberts (2003) estimated that approximately 800 programs existed, a slightly more conservative estimate.

Regardless, the number of leadership development programs within higher education has grown tremendously. Dugan et al. (2008) found that "The number of curricular and cocurricular leadership programs has more than doubled in the past two decades with an estimated 25% of all institutions now hosting programs (Scott, 2004)" (p. 476). However, Dugan et al. (2008) suggested that the research related to leadership education lags significantly behind.

Current leadership education environment

As mentioned, although growing consensus exists that leadership can be taught, the types of programs utilized in preparing students to be leaders vary greatly across college campuses. Dugan and Komives (2007) summarized trends in leadership education including a more relational model of leadership emphasizing importance of civic engagement, and with increased professionalization of the role of those in leadership education. In summary, the researchers found that "All of these trends converge in the form of an institutional, and societal, mandate that calls for institutions of higher education to purposefully develop socially responsible leaders" (p. 5).

However, programs have been found to vary greatly and to be rather inconsistent. Brunghardt, Greenleaf, Brunghardt, and Arensdorf (2006), in their qualitative study of academic leadership programs at 15 institutions, found six major differences between programs. These differences varied from mission to balance of theory and skills to administrative structure. Institutions of higher education could benefit through greater consensus of what outcomes related to leadership education ought to be.

Longo and Gibson (2011) presented a call for more integrative leadership education in colleges and universities. The authors summarized a 2008 symposium held to create a shared definition of leadership education. At this symposium, the researchers found that "Participants also underscored that a new definition of leadership education is not only a set of programs, courses, or skills. It is an ethos that should extend across campus and that values transparency, authenticity, collaboration, action, and interactivity" (p. 9). Spanning even beyond consistency within institutions, Brunghardt et al. (2006) found that in order to gain credibility, institutions must come to agreement on "common ground in teaching students historical, theoretical, and practical foundations and applications of leadership" (p. 22).

Call for investment of higher education in leadership development

Institutions of higher education are increasingly being called upon to assist in the preparation of leaders who can be successful in the complexity of today's world, as discussed in the previous section. This can partially be attributed to the evolution in the way people conceptualize leadership. In contrast to past conceptions of leadership as an inherent trait, the most recent paradigms related to leadership education suggest that leadership can be taught (Daloz Parks, 2005; Kouzes & Posner, 2007; Zimmerman-Oster & Burkhardt, 2000).

Dugan (2006) found that institutions frequently have explicit goals within their mission statements related to leadership development of students, indicating commitment to this endeavor.

Astin and Astin (2000) spoke of the rich opportunities that exist in both the curriculum and cocurricular programming for leadership education. In addition, they presented a call for action to those serving in higher education:

> If the next generation of citizen leaders is to be engaged and committed to leading for the common good, then the institutions which nurture them must be engaged in the work of the society and the community, modeling effective leadership and problem solving skills, demonstrating how to accomplish change for the common good. (p. 12)

Daloz Parks (2005) emphasized the importance of educating students to be leaders who understand the complexity of the world today. In order to do this, an unearthing of the leadership myth must be undertaken. This myth states that leadership is a "focus on personality characteristics, situation analysis, and transactions of power and influence" (p. 4). Daloz Parks (2005) would argue it takes both doing and reflecting to help students understand leadership.

Factors influencing student socially responsible leadership capacity

Important to this study is an understanding of variables related to leadership outcomes. Of particular significance are factors related to the development of socially responsible leadership capacity. The following studies draw connections between precollege characteristics and college experiences affecting leadership capacity.

Dugan and Komives (2007) found a variety of influences, including precollege experiences, to affect leadership capacity. Both Dugan and Komives (2007) and Dugan et al.

(2008) found that women reported slightly higher scores than men in outcomes of socially responsible leadership. Dugan et al. (2008) found that sexual orientation did not contribute to meaningful difference in outcomes.

Dugan and Komives (2007) found that racial and ethnic groups mattered in "consciousness of self, congruence, commitment, controversy with civility, citizenship and change" (p. 14) measures of the Social Change Model, and that an openness to change was greater for marginalized students. Dugan et al. (2008) found that "Complex findings associated with race reflect highest scores among African American and Black college students and lowest scores among Asian Pacific American college students" (p. 476). Arminio et al. (2000) found that students of color did not like being labeled as leaders because being labeled as a leader brought personal cost such as "…privacy, interdependence, associations, and collateral relationships" (p. 501). This same study also found that students of color reported lack of role models on campus.

Several researchers (Dugan, 2006; Dugan & Komives, 2007; Haber & Komives, 2009) found college involvement to influence leadership capacity. Dugan (2006) found that community service influenced leadership development, and Dugan and Komives (2007) found that discussions about socio-cultural issues matter, as did mentoring, community service, and holding positions of leadership and participating in formal leadership programs. Similarly, Haber and Komives (2009) found involvement in student organizations, involvement in community organizations (for women), and holding a formal leadership role (for women) to have a positive influence on aspects of leadership capacity. However, Haber and Komives (2009) found that leadership training and education programs did not have significant influence on outcome measures of the Social Change Model, which was contrary

to past research. Thompson (2006), in his study of upperclass students at a small liberal arts college, found that interactions with faculty members, staff members, and peers were the strongest factors related to students' understanding of leadership.

Outcomes of leadership education

A number of studies (Dugan, 2006; Dugan & Komives, 2007; Dugan et al., 2008) have focused on socially responsible leadership capacity as an outcome of students' higher education experience. However, many other outcomes related to leadership education have been found. Bialek and Lloyd (1998) found numerous positive outcomes of involvement in a leadership development program at the University of Wisconsin. Some of these benefits included skill development in working with others, a strengthened relationship to the institution, and enhanced confidence.

Posner (2009), in a longitudinal study of 384 students at a private institution utilizing the Student Leadership Practices Inventory, found significant differences in leadership behaviors between those who participated in leadership programs and those who did not. Zimmerman-Oster and Burkhardt (2000), in their analysis of programs funded by the W. K. Kellogg Foundation, found that "more than 90 percent reported their participants had an increased sense of social, civic, and political awareness" (p. 12). In their study of 300 institutions, Smart, Ethington, Riggs, and Thompson (2002) found that institutional expenditures related to leadership development had a statistically significant influence on students' perceptions on their growth as leaders.

As indicated, institutions are being called upon to provide programming to enhance student leadership abilities. Additionally, they are being called to provide empirical evidence of program effectiveness. Although some researchers have focused on these areas and some

quality programs are currently in progress, institutions have much work to complete in continuing to provide evidence of program effectiveness. In the next section, literature related to mentoring will be explored.

<div align="center">**Mentoring**</div>

Mentoring is one way institutions can support students as they experience challenges in leadership education programs. The literature in the area of mentoring, like that in the area of leadership, is vast. However, several trends in research are presented here. This section begins with a discussion of the history and various definitions of mentoring. The discussion next moves into the various types of mentoring and the contexts within which mentoring has been studied. Characteristics and stages of mentoring are explored, as is the concept of mentoring environments. This conversation is followed by information related to both the benefits of mentoring, including in higher education, as well as the risks associated with mentoring.

History and definitions of mentoring

Like leadership, references to mentoring can be found through the ages. Eby, Rhodes, and Allen (2007) found that mentoring can be traced back in time to Homer's *The Odyssey*. Gibson, Tesone, and Buchalski (2000) found that "Odysseus entrusted his son's education to Mentor, the character whose name has come to mean anyone who guides a protégé" (p. 58). Additionally, Eby et al. (2007) found that mentoring concepts are found in numerous literary works throughout time. However, "Scholarly interest in the role of mentoring in adult development is often traced to Levinson's (Levinson et al., 1978) seminal study of human development" (Eby et al., 2007, p. 8). It was around the time of this work, or

a few years earlier, that sociologists began studying mentoring in the context of at-risk populations.

The definition of mentoring for this particular study comes from Daloz Parks (2008) and is considered to be a reciprocal relationship involving recognition, support, challenge, inspiration, and accountability. Although this is how mentoring is operationalized within the context of this particular study, several other elements characterize mentoring as well. Many researchers (Collins-Shapiro, 2006; Daloz Parks, 2000; Gibson et al., 2000; Healy & Welchert, 1990; Kartje, 1996; Maxwell, 2008; Ragins & Kram, 2007; Stoddard & Tamasy, 2003; Young & Perrewe, 2004; Zachary, 2005) have worked to advance the way mentoring is defined.

Eby et al. (2007) found that within particular fields, mentoring can mean different things. This is because mentoring can take shape in varied ways within different types of environments. In addition, Kartje (1996) found that defining mentoring can be a challenge as most of the research comes from individual personal experiences, which can also vary greatly due to the unique nature of these personal experiences. Although mentoring can be somewhat difficult to define, some of the more generally agreed upon definitions will be explored to understand common elements.

Some would define mentoring in a similar way to that of Young and Perrewe (2004), who found mentoring to be, "a mentor, a more experienced person, providing support and guidance to a less experienced person referred to as a protégé (Kram, 1985) both of whom are working together in a mutually agreed upon relationship" (p. 104). Healy and Welchert (1990) worked to advance a definition of mentoring that could contribute to both research and practice. They found mentoring, "to be a dynamic, reciprocal relationship in a work

environment between an advanced career incumbent (mentor) and a beginner (protégé)

aimed at promoting the career development of both" (p. 17). Similarly, Ragins and Kram

(2007) found that core elements are frequently related to psychosocial and career functions.

Most definitions include some element of a more advanced individual guiding a less

advanced individual in finding success within an organization, most often within the context

of a career. However, as will become evident, the contexts within which mentoring

behaviors take place, and the form that they take, do vary considerably.

Types of mentoring

A number of researchers have focused their work on the type of relationship through

which mentoring takes form (Allen, Lentz, & Eby, 2006; Baugh & Fagenson-Eland, 2007;

Bryant, 2005; Bryant and Terborg, 2008; Campbell, 2007; Egan & Song, 2008; Gibson et al.,

2000; Mavrinac, 2005; McManus & Russell, 2007; Parise & Forret, 2008; Smith, 2009;

Ragins & Cotton, 1999). Mentoring has been found to take form in both formal and informal

ways. Although mentoring has historically been defined as a more experienced individual

guiding a less experienced one, peer mentoring has also become a rather popular practice and

can characterize the mentoring relationship as well.

Formal and informal mentoring

A number of researchers (Allen et al., 2006; Baugh & Fagenson-Eland, 2007;

Campbell, 2007; Egan & Song, 2008; Gibson et al., 2000; Parise & Forret, 2008; Ragins &

Cotton, 1999) have explored differences in formal and informal mentoring relationships.

Baugh and Fagenson-Eland (2007) found that "Formal mentoring relationships are those that

are initiated through some organizational program that assigns mentors and protégés and

facilitates and supports developmental relationships within the assigned dyads for a specified

period of time (Wanberg, Walsh & Hazlett, 2003)" (p. 250). The authors suggested that, although these programs may have typically supported traditional hierarchical mentoring relationships, formal mentoring programs now also take form in peer mentoring.

Some research has been conducted specifically focusing on outcome differences between formal and informal mentoring programs. Egan and Song (2008) found that formal mentoring programs brought several positive outcomes to the individual and organization. However, Ragins and Cotton (1999) found through their study of gender and type of mentoring that protégés in informal programs, as opposed to formal programs, perceived their mentors as more effective in their role, and that protégés in these informal relationships attained greater benefit from involvement. Baugh and Fagenson-Eland (2007) found, "The evidence to date suggests that formal relationships, while beneficial, are not truly on par with informal relationships with respect to individual outcomes, whereas the organizational-level outcomes have rarely been assessed" (p. 267).

Several practices have been found to create the greatest amount of benefit from these programs. Allen et al. (2006) and Paris and Forret (2008) found that the more input and training mentors had in formal mentoring programs, the more positive the outcomes for participants. Campbell (2007) offered several best practices in formal mentoring programs related to intentional mentoring, the recruitment and selection of mentors, matching of mentors and protégés, training of mentors, frequency of meetings, boundaries, and in the development of a mentoring program.

Peer mentoring

Several researchers (Bryant, 2005; Mavrinac, 2005; McManus & Russell, 2007; Smith, 2009) have focused their study on peer mentoring relationships. Mavrinac (2005),

described peer mentoring as a "developmental relationship that is premised on a multiple mentor approach in which benefit can be gained from a variety of experiences and people throughout an employee's career" (p. 398). Bryant and Terborg (2008) found knowledge sharing to be a main positive outcome in organizations specifically related to peer mentoring. In addition, Smith (2009) found that peer mentoring also had positive leadership outcomes for those serving as peer mentors. McManus and Russell (2007) found that a need for peer mentoring stemming from the increasing number of flat organizations. They stated that "…flatter organizational structures with fewer hierarchical levels reduce the already relatively low number of potential traditional senior-level mentors available in organizations" (p. 273), thus driving the demand for peer mentorship.

Contexts of mentoring

Eby, Allen, Evans, Ng, and Dubois (2008) found that mentoring research within a variety of contexts including youth settings, higher education, and work settings. In addition, McAlearney (2005) studied mentoring within the context of health care organizations, and Blass and Ferris (2007) studied mentoring in the military. Some studies (Kalbfleisch, 2000; Kammeyer-Mueller & Judge, 2008) that are more comprehensive in nature have focused on how mentoring is contextualized in a number of settings.

What is important to note is that regardless of the context in which mentoring is occurring, certain elements of an organization's culture can inhibit or promote mentoring. For example, O'Neill (2005) found that cooperative contexts, as compared to competitive contexts, serve to promote mentoring behaviors. She found a cooperative context to be supportive and characterized by open and constructive relationships.

Many researchers (Brawer, 1996; Collins-Shapiro, 2006; Daloz Parks, 2000; Erkut & Mokros, 1984; Haring, 1999; Hicks, 2011; Smith, 2009; Valadez & Duran, 1991) have explored the multiple benefits of mentoring in the context of higher education. Much of the information related to mentoring utilized to inform this study comes from research in the area of higher education. However, the study of mentoring within other contexts has also provided valuable information.

Characteristics of mentoring

A number of characteristics of the mentor and of the mentoring relationship have been found to provide positive results. Daloz Parks (2000), in her discussion of mentoring environments, indicated that recognition, support, challenge, and inspiration are all key elements of mentoring. In an additional work, Daloz Parks (2008) offered a slightly varied list of five gifts of mentoring that include recognition, support, challenge, inspiration, and accountability. Darwin (2004) found authenticity, nurturance, approachability, competence, inspiration, conscientiousness, hard-work, and volatility to be integral to the development of mentoring relationships.

Jacobi (1991) found in her review of literature that mentoring relationships are reciprocal in nature and that benefit is derived by both parties. Zachary (2005) discussed eight mentoring practices, or hallmarks of mentoring, including "alignment, accountability, communication, value and visibility, demand, multiple mentoring opportunities, education and training and safety nets" (p. 52). Young and Perrewe (2004) found clear expectation setting to be essential in ensuring the success of mentoring relationships.

Stages of mentoring

Mentoring relationships are not stagnant but, rather, are dynamic. Kram (1983) studied eighteen relationships in a corporate setting and found that mentoring relationships went through four relationship phases. Of the importance of these phases, Kram (1983) found that "examination of the phases of a mentor relationship highlights the psychological and organizational factors that influence which career and psychosocial functions are provided, and it shows how each manager experiences the relationship at any given point" (p. 614). The four phases described are initiation, cultivation, separation, and redefinition.

Within the context of this study, it is more beneficial to utilize the stages of Zachary's (2000) work. Collins-Shapiro (2006) found that "Zachary's focus is on formal mentoring relationships with a shorter time horizon, therefore, the pre-relationship stages become more important than they are in Kram's model" (p. 6). Table 2.1 exhibits these two theories of mentoring stages from the work of Collins-Shapiro (2006).

Table 2.1

Stages of Mentoring by Kram (1985) and Zachary (2000)

Kram (1985)		Zachary (2000)	
Phase	Description	Phase	Description
Initiation	6-12 months where relationship develops; mentee has mentor on pedestal; mentors sees mentee as one with high potential	Preparing	"Till the soil"; Discover each other; clarity of role responsibilities
Cultivation	2-5 years; expectations are tested; career and psychosocial functions develop	Negotiating	"Plant the seeds"; Agree to learning goals, ground rules; when and how to meet
Separation	Significant changes in functions provided by relationship to one or both members; can be structural or psychological	Enabling	Longest phase; Implementation of relationship

Table 2.1 (continued)

Kram (1985)		Zachary (2000)	
Phase	Description	Phase	Description
Redefinition	Several years later; usually evolves into informal friendship	Closing	Celebrate achievements and move on; Often uncomfortable separation for one or both

Note. Chart from Collins-Shapiro, 2006, p. 7.

Mentoring environments

Both Daloz Parks (2000) and Zachary (2005) spoke of the importance of the creation of mentoring environments and communities. In her 2008 work, Daloz Parks offered commentary on why mentoring environments are so essential to the work of educators, particularly in today's complex world:

> In every time, but especially in these times, our students require mentoring environments. A mentoring environment provides vital support for a critical transformation: that is, the move from a more limited world view and capacity to make a meaningful contribution to a more adequate world view and enhanced capacity to contribute in positive ways to the ongoing evolution of life. By intention or default, every college and university is a mentoring environment—especially for students and for the younger members of the faculty and staff. (p. 6)

Mentoring environments allow those within the organization to build meaningful relationships naturally with those whom they have natural rapport. This concept is particularly important to this study as many of the relationships that students developed were not due to formal mentoring programs but rather were due to the fact that mentoring took place naturally.

Benefits of mentoring

Mentoring has been linked to many positive outcomes, both within the context of higher education and beyond. Researchers have found that effective mentoring provides benefit at both the individual level (Hale, 1996; Hargreaves & Fullan, 2000; O'Neill, 2005; Sosik & Godshalk, 2000) and also at the organizational level (Bryant, 2005; Hale, 1996). It is helpful to review these benefits separately, yet in many ways they are very integrated.

Individual benefits

Mentoring has been found to have a number of benefits to the individuals involved in the relationship, many of which are found in the work setting. Collins-Shapiro (2006) found that the benefits to the individual mostly relate to psychosocial and career benefits. Dougherty and Dreher (2007) found recurring themes in mentoring literature related to satisfaction, socialization, performance and reward, and psychosocial benefits. Egan and Song (2008) found supporting evidence of several of these benefits, including "increases in job satisfaction, organizational commitment, person-organization fit, and performance by participants" (p. 351). Eby et al. (2008) found a wide range of favorable outcomes related to mentoring, with greater impact in work settings and in academic settings as opposed to youth settings.

Benefits to individuals involved in mentoring can also be found in the higher education setting. Daloz Parks (2000) noted the important outcome of vocational discernment in mentoring environments. Very relevant to this study, Campbell et al. (*in press*), Dugan et al. (2008), and Jabaji et al. (2008) found mentoring to influence socially responsible leadership capacity. Additionally, Komives, Mainella, Longerbeam, Osteen, and Owen (2006) found a positive impact of mentoring on leadership identity development.

Scandura and Williams (2004) found mentoring to promote transformational leadership development. Daloz Parks (2005) and Gleason (2009) also found mentoring to have a positive influence on leadership outcomes. Finally, Valadez and Duran (1991) found that mentoring between faculty and students helped students understand the research process.

The mentioned benefits are most connected to the protégé in these relationships. However, benefits to mentors have also been found. As O'Neill (2005) shared, "mentors can benefit from rejuvenation, increased promotion rates, an increased power base, and access to work-related information (Allen et al., 1997; Aryee et al., 1990; Burke et al., 1994, 1991; Ragins and Scandura, 1999)" (p. 439).

Organizational benefits

Mentoring has also been linked to positive organizational benefits. Within the context of higher education, Brawer (1996) discussed mentoring as a support mechanism in retention efforts in higher education institutions and Haring (1999) connected mentoring specifically to the retention of historically underrepresented populations. In learning organizations, Hale (1996) found that mentoring helped "(1) in doing better work, (2) by enhancing motivation and learning; and (3) by inculcating organizational norms, values, and opportunities" (p. 427). O'Neill (2005) cited a number of these same organizational benefits, as did the Corporate Leadership Council (2005), which found mentoring to promote diversity, retain knowledge, and create a continuity of culture.

Risks of mentoring

Although primary focus has been placed on the positive outcomes associated with mentoring, it is important to address some of the risks associated. These are risks somewhat similar to risks associated with any type of relationship. Gibson et al. (2000) indicated that

within the context of corporate organizations, a risk of confidentiality can be associated with mentoring. These researchers also tied risk to the emotional attachment of these relationships.

Hicks (2011) discussed a number of potential dysfunctional aspects of a mentoring relationship with a supervisor within the context of libraries. These dysfunctions can have ramifications for the protégé, mentor, and organization alike, and included challenges such as negative relations, sabotage, difficulty (in relating to one another), submissiveness, deception, and harassment. However, the author suggested that through a clear understanding of potential risks and frequent reflection, many of these risks can be mitigated. Although risks are associated with mentoring, these certainly do not warrant avoidance of the practice. Rather, by being aware of these risks, caution can be taken to avoid potential issues.

Mentoring and Leadership

In addition to the numerous benefits related to mentoring, both within the context of higher education and beyond, mentoring has also been associated with the development of positive leadership outcomes. Some would consider leadership and mentoring to be somewhat similar. However, Sosik and Godshalk (2000) found several differences that make the constructs distinct. Perhaps the most informative of these differences is that "not all experienced leaders become effective mentors (Ragins and Cotton, 1993)" (p. 367). Within this section, literature tying mentoring to specific leadership theories will be explored. Mentoring can be viewed as a competency of leadership, but of most relevance to this study and as mentioned earlier, mentoring serves as a support mechanism in the development of leadership.

Mentoring and transformational leadership

Numerous researchers (Mavrinac, 2005; Scandura & Williams, 2004; Sosik & Godshalk, 2000; Sosik et al., 2004) have tied mentoring specifically to transformational leadership. Mavrinac (2005) explained that transformational leadership is different from transactional or exchange leadership in that "transformational leadership cuts more deeply than transactional leadership, changing the very nature of something" (p. 394). She then connected peer mentoring to transformational change and leadership within the context of librarianship. Hicks (2011), in her discussion of potential risks related to mentoring, also delved into the benefit of mentoring as a leadership tool within this same context of librarianship. Additionally, a study by Scandura and Williams (2004) found that supervisory career mentoring led to successful leadership outcomes, as well as additional career and psychosocial benefits. Finally, Sosik and Godshalk (2000) found that mentors who embodied transformational leadership had a greater positive influence on protégés.

Mentoring and leadership identity development

Collins-Shapiro (2006) suggested that mentoring could be tied to outcomes associated with leadership identity development, as older individuals supported younger students in their development through various stages related to this leadership identity development. The Leadership Identity Development Model, developed by Komives et al. (2006), found that individuals develop through six stages as they move from a hierarchical view to a process-oriented view of leadership. The findings of Komives et al. (2006) determined that "aspects of the environment such as the mentoring role of adults and learning the language of leadership were critical to the transition" (p. 414).

Mentoring as leadership competency

A number of researchers (Kunich & Lester, 1999; Smith, 2009; Zachary & Fischler, 2010) have found mentoring to be a behavioral outcome of leaders, rather than simply a means to the development of effective leaders. Kunich and Lester (1999) found mentoring to be not only a method to develop leadership competency but also an obligation of current leaders to ensure the competence of future leaders. Similarly, Zachary and Fischler (2010), through utilization of Kouzes and Posner's (2007) framework, found that in order for a leader to be successful, he or she must have the ability to be an effective mentor. Finally, Smith (2009), in her study utilizing data from the 2006 Multi-Institutional Study of Leadership, found that serving as a peer mentor enhanced the leadership self-efficacy of the mentors themselves.

Mentoring as support mechanism

As indicated, most relevant to this study is the role of mentoring as a support mechanism for those developing leadership skills. Several of the researchers mentioned earlier found mentoring to be associated with specific theories of leadership and outcomes related to these theories. In addition, Maxwell (2008) found that mentoring could serve as a method for leaders to equip other leaders for success. Gleason (2009) found that mentoring assisted students in *Camp Adventure™ Child & Youth Services*, a youth-serving service-learning organization to develop leadership competencies as participants dealt with ambiguity and new challenges.

Solansky (2010) found that mentoring provided benefit within leadership development programs and that mentors ought to act as coaches and openly discuss leadership issues in order to provide the greatest benefit to those in the program. Finally,

Gibson et al. (2000) stated that "Mentoring is a natural part of leadership and mentoring of any kind is beneficial to less experienced employees" (p. 66).

Mentoring and socially responsible leadership

Related to this study, Dugan and Komives (2007), in their analysis of the 2006 Multi-Institutional Study of Leadership data set, found mentoring to be among the top predictors of several outcomes related to the Social Change Model. Jabaji et al. (2008) found a positive relationship between mentoring functions and leadership efficacy utilizing this same data set. Specifically, being mentored at all and being mentored more frequently were both tied to higher measures of leadership efficacy. Additionally, Jabaji et al. (2008) found,

> Mentoring by faculty mattered (that is, explained a significant amount of the variance) on all Social Change Model leadership outcomes for both men and women. Mentoring by other students mattered most to women (on four of the scales of the Social Change Model) and to men on collaboration. Mentoring mattered most on collaboration…mentoring by students, faculty, and student affairs staff were all significant for women and mentoring by peers was significant for men.

Most recently, Campbell et al. (*in press*), in their study utilizing data from the 2009 Multi-Institutional Study of Leadership, found that the leadership capacity of students was directly influenced by mentoring. This study focused on socially responsible leadership capacity and utilized the same data set that will be utilized in the current research study. Campbell et al. (*in press*) found differential influence based on type of mentor and the process in which the relationship evolved.

As indicated, mentoring and leadership have been connected in various ways. Most notably for this study, mentoring has been found to support students in the development of

leadership capacity. The next sections move to an analysis of the literature related to institution types and then the theoretical framework of the study.

Institutional Type and Outcomes

Carnegie Classification

The most frequently cited method for understanding differences in institutions is the Carnegie Classification. McCormick and Zhao (2005) summarized the context for the development of the Carnegie Classification system, which was first published in 1973:

> The commission [Carnegie Commission on Higher Education] soon confronted a problem: no extant classification system differentiated colleges and universities along the dimensions that were most relevant to its work. So in 1970 the commission developed a new classification scheme to meet its analytic needs. Three years later, it published classification listings of colleges and universities to be helpful to many individuals and organizations that are engaged in research on higher education. (p. 51)

McCormick and Zhao (2005) found that the original intention of this system was not only to represent the diversity within the higher education system in the United States but also to communicate to others the types of students and faculty members at these institutions. As McCormick and Zhao (2005) shared, "this was achieved by looking at empirical data on the type and number of degrees awarded, federal research funding, curricular specialization, and (for undergraduate colleges only) admissions selectivity and the preparation of future PhD recipients" (p. 52).

Updates to the Carnegie Classification

Since first being published in 1973, revisions to the structure of the classifications have been completed in 1976, 1987, 1994, 2000, 2005, and 2010 (Carnegie Foundation for the Advancement of Teaching, 2011). McCormick and Zhao (2005) found these revisions to be driven by changes not only within existing institutions but also by changes in number of existing institutions. In addition, the Carnegie Classification system has, over the years, received a great deal of criticism which has prompted some of the restructuring.

Major revisions to the structure occurred in 2005 and 2010. June (2006) found of the 2005 changes, "The extensively revised framework features changes that include subcategories for two-year colleges, a first in the classification's history; three subcategories of doctorate-granting institutions, up from two; and the discontinuation of the term 'liberal arts' to describe mostly undergraduate colleges" (para. 3). Jaschick (2006) stated that until the time of these revisions, "the classifications were based on criteria that were intended to neatly divide colleges, based on such factors as how many doctoral degrees they awarded, what share of their degrees were undergraduate, etc." (para. 2). The 2005 revisions to the structure classified approximately five hundred more institutions for a total of approximately 4,300 institutions (June, 2006).

McCormick and Zhao (2005) shared that with the development of new elective classifications "we open the possibility for special-purpose classifications involving only those institutions willing to make special efforts at additional documentation" (p. 56). According to Jaschik (2006), it had been hoped that between 80 and 100 institutions would be classified as having a focus on community engagement. June (2006) found that these

revisions were also intended to discourage utilization of the classification for ranking purposes.

Another radical revision in the system occurred in the 2010 update. In 2010, the Carnegie Classification system was restructured to include six all-inclusive classifications to exhibit the many dimensions in which institutions differ. This update included six categories, plus elective classifications. The six categories are undergraduate instructional program classification, graduate instructional program classification, enrollment profile classification, size and setting classification, and basic classification. Of these six categories, the basic classification (previously called the traditional classification) is most comparable to past classification structures (Carnegie Foundation for the Advancement of Teaching, 2011).

Table 2.2 provides information from 2009 on the number of institutions within the classifications. This table utilizes the basic classification category, as this is the information that will be utilized in this particular study. For the full expanded list of institution types, see Appendix B. This information is valuable in understanding how the sample within this study compares to the overall higher education landscape in the United States.

Table 2.2

Distribution of Institutions and Enrollments by Classification Category, 2009

Category	Number of Institutions	Percentage of Institutions	Total Enrolled	Percentage of Enrollment	Average Enrollment
Associate's	1,920	41.6%	8,185,715	39.6%	77,385
Research University, Very High	108	2.3%	2,809,581	13.6%	26,015
Research University, High	98	2.1%	1,739,837	8.4%	17,753
Doctoral/Research Universities	89	1.9%	1,226,204	5.9%	13,778
Master's	728	15.7%	4,665,753	22.5%	15,600
Baccalaureate	808	17.4%	1,421,397	6.8%	5,427

Table 2.2 (continued)

Category	Number of Institutions	Percentage of Institutions	Total Enrolled	Percentage of Enrollment	Average Enrollment
Special (faith, medical, engineering, technical, business, arts, law, other)	851	18.4%	659,403	3.2%	9,846
Tribal Colleges	32	0.7%	19,686	0.1%	615
All Institutions	4,634	100.0%	20,727,586	100.0%	4,473

Note. Adapted from http://classifications.carnegiefoundation.org, which indicated source: 2010 Carnegie Classification; National Center for Educations Statistics, IPEDS Fall Enrollment (2009).

Challenges to the Carnegie Classification

As indicated, the Carnegie Classification system has historically received criticism. One example of this criticism comes from Coaxum (2001), who criticized the Carnegie Classification system for lumping all historically black colleges and universities together and not differentiating based on institutional characteristics. The author posited this has led to a dearth of research focusing on the unique differences among these institutions.

McCormick and Zhao (2005) had the following criticisms regarding the limitations related to classification systems:

Significant problems arise when classification is seen as an adequate representation of an institution's identity or character. Colleges and universities are complex organizations that differ on many more dimensions than the handful of attributes used to define the classification's categories, and of course the very act of asserting similarity among institutions runs counter to the rhetoric of distinctiveness on our campuses. More important, the host of intangibles that constitute institutional identity could not possibly be incorporated into an empirically based classification system. (p. 55)

As mentioned, the recent revisions in the Carnegie Classification structure have been developed in part to discourage the use of the Carnegie Classification as criteria for ranking institutions. This seems to be a response to criticism.

Evidence of differential use of good practices

It is important to review the research related to institutional effects and outcomes. A number of researchers (Pascarella et al., 2004; Seifert et al., 2006, 2010; Umbach & Kuh, 2006) have explored differential use of Chickering and Gamson's (1987, 1991) good practices, which have been associated with positive student growth. Pascarella et al. (2004), in their longitudinal study, found differential use of 19 best practices. They found that liberal arts colleges, in comparison to other institution types, more frequently utilized these good practices. Of particular pertinence to this study is that student-faculty interaction was one of these good practices. Similarly, Seifert et al. (2010) found that students who attended liberal arts colleges reported a greater amount of experience with these good practices, as compared to those attending other institution types.

Seifert et al. (2006) found that African Americans experienced greater levels of good practices at Historically Black Colleges and Universities (HBCUs) than at other institution types. Interestingly, "Only one difference in experiences of good practices between historically Black and liberal arts colleges" (Seifert et al., 2006, p. 185). Finally, Umbach and Kuh (2006), in a study utilizing National Survey of Student Engagement data, found that students at liberal arts colleges were more likely than those at other institutions to engage in diversity-related activities. Umbach and Kuh (2006) found that,

Students who engaged in diversity-related activities more frequently reported higher levels of academic challenge, greater opportunities for active and collaborative

learning, and a more supportive campus environment. They were also more satisfied with their college experience and reported greater gains in a variety of areas since starting college. (p. 183)

Evidence of differential outcomes

The previous section reported differential exposure to and use of good practices within different types of institutions. Studies related to higher education institution type and outcomes have found mixed results. Part of the challenge inherent in this analysis is in differentiating what of the difference in outcomes can be attributed to institutional effects and what should be attributed to student characteristics.

McCormick et al. (2009), in their study of the utility of Carnegie Classification updates, found that certain institutional characteristics (such as graduate-undergraduate coexistence and residential character) do indeed have an impact on student outcomes. Pike et al. (2003) analyzed college experience and learning outcomes of students attending institutions of six different Carnegie Classifications. The researchers found that differences did exist in outcomes but cautioned that these outcomes may be due to differing background characteristics of students attending these institutions. Kezar and Kinzie (2006), in their case study of 20 institutions, found that "the unique mission of campuses appeared to be a richer analytic tool for understanding the ways campuses enacted the program, policies, and practices related to engagement rather than institutional type (e.g., research, commuter, or liberal arts)" (p. 158).

Specifically related to the context of this study, Dugan and Komives (2010), in their study of 14,252 students, sought to understand what influences students' capacity for socially responsible leadership. Within their hierarchical regression model, the researchers input

institutional characteristics into one block of the analysis. The researchers found that "although a number of variables entered the regression models as significant, the block itself did not contribute to a change in the variance explained" (p. 533). Rather, it was the experiences within the institution that had much more explanatory value.

Institutional selectivity and educational quality

One institutional attribute that is often utilized in the comparison of student outcomes and exposure to good practices is institutional selectivity. Kuh and Pascarella (2004) utilized the National Study of Student Learning and National Survey of Student Engagement data to determine if good educational practices are more prevalent at more selective institutions and found that "institutional selectivity is a weak indicator of student exposure to good practices in undergraduate education" (p. 56). Pascarella et al. (2004), in a similar study utilizing the framework of good practices in undergraduate education, found evidence that institutional selectivity did have a relationship to the fostering of good educational practices. However, "while institutional selectivity may count in terms of fostering good practices, the magnitude of the net relationships we uncovered suggests it may not count very much" (Pascarella, 2004, p. 278). As can be seen, conflicting evidence of the relationship between institutional selectivity and student outcomes has been found.

<div align="center">

Theoretical Framework

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Thus far, a rather broad overview of the literature supporting this study has been reviewed. Now the theoretical framework of the study will be explained to understand how theory has informed the study's development.

Social Change Model of Leadership

The Social Change Model provided the foundation of the MSL instrument, which utilized the Socially Responsible Leadership Scale (Campbell et al., *in press*) to measure the outcomes related to the Social Change Model. Within the Social Change Model, leadership is considered to be a process, and the outcome is an understanding of how one can facilitate positive change, as well as have increased self-knowledge and leadership competence (Cleveland State University, n.d.).

As indicated in Chapter 1, three components form the foundation of the Social Change Model. These are group values, individual values, and society/community values. These three components contain the seven values, frequently called the seven Cs of leadership. Within the model, an eighth C of change is represented in the center. Collaboration, common purpose, and controversy with civility are elements of group values. Consciousness of self, congruence (behavior consistent with one's beliefs), and commitment are elements of the individual values component. Citizenship is the element of society/community values. Finally, the ability to create positive change is the outcome (Cleveland State University, n.d.).

The Social Change Model informs the dependent variable within this study, which is socially responsible leadership capacity, to understand how various background and environmental variables affect socially responsible leadership development. Figure 1.1 exhibited the conceptual model of these values and how they relate with one another. Cilente (2009) indicated that reciprocity exists between all of the values and dimensions within this model. She found that "In the Social Change Model, each level interacts with and influences the other and each value is interconnected to the others" (p. 65).

Table 2.3 provides a definition of each of the seven Cs of the Social Change Model.

These definitions were retrieved from HERI (1996).

Table 2.3

Social Change Model Components, Values, and Definitions

Component	Value	Definition (HERI, 1996, pp. 22-23)
Individual Values	Consciousness of self	being aware of the beliefs, values, attitudes, and emotions that motivate one to take action
	Congruence	thinking, feeling, and behaving with consistency, genuineness, authenticity, and honesty towards others
	Commitment	psychic energy that motivates the individual to serve and that drives the collective effort. Commitment implies passion, intensity, and duration.
Group Values	Collaboration	to work with others in a common effort. It constitutes the cornerstone value of the group leadership effort because it empowers self and others through trust.
	Common purpose	to work with shared aims and values. It facilitates the group's ability to engage in collective analysis of the issues at hand and the task to be undertaken.
	Controversy with civility	recognizes two fundamental realities of any creative group effort; that differences in viewpoint are inevitable, and that such differences must be aired with civility.
Society/Community Values	Citizenship	the process whereby the individual and the collaborative group become responsibly connected to the community and the society through the leadership development activity. To be a good citizen is to work for positive change on behalf of others and the community.

Note. Seven values, or seven C's of the Social Change Model of Leadership. From HERI (1996), pp. 22-23.

In addition to the seven values mentioned above, HERI (1996) found that "CHANGE, of course, is the value 'hub' which gives meaning and purpose to the 7 C's. Change, in other words, is the ultimate goal of the creative process of leadership – to make a better world and

a better society for self and others" (p. 21). The Social Change Model of Leadership informed the dependent variable utilized in this study. Additionally, research related to the Social Change Model informed many of the dependent variables utilized in this study. The Social Change Model utilized Astin's (1993) I-E-O conceptual framework in its analysis, as did this research study.

Mentoring theory

Kram's (1985) theory of mentoring functions informed the use of two mentoring composite variables utilized as independent variables in this study. Kram (1985) found two primary functions of mentoring, career and psychosocial support. Johnson, Rose and Schlooser (2007) defined career functions as "mentor behaviors aimed at preparing and promoting a protégé for career development" (p. 52) and psychosocial functions as "mentor behaviors aimed at helping and supporting a protégé on personal/emotional levels" (p. 52).

In this study, psychosocial support is represented by the mentoring for personal development construct. As stated in Campbell et al. (*in press*), "the mentoring for personal development scale mirrors closely the psychosocial mentoring orientation" (p. 23). The variables utilized in this scale measure were utilized in this study in the creation of the composite variable. In addition, the career functions in this particular study are represented by the mentoring for leadership empowerment scale items. In this study these variables were combined into a composite variable.

Institutional type differences

Numerous researchers (McCormick et al., 2009; Pascarella et al., 2004; Seifert et al., 2006, 2010; Umbach & Kuh, 2006) have found differing student outcomes depending on institutional type. McCormick et al. (2008), in their study of 2000 and 2005 Carnegie

Classifications, found differences in institutional effects related to student experiences and outcomes but caution that much of this variation may relate to student-level background differences. Additionally, much of this research has related to the exposure of students to good practices. This McCormick et al. (2009) research informed the use of institutional type, or Carnegie Classification, as the grouping variable in the regression analysis to understand the unique effects of mentoring and other environmental variables on the student outcome of socially responsible leadership.

Theory operationalized

If the environment of institutions influences student development differently, mentoring would have varying influence on socially responsible leadership capacity development. Mentoring for personal development and mentoring for leadership empowerment may have differing effects on socially responsible leadership capacity in these environments. The research questions, as well as the statistical techniques and variables utilized in answering these questions, were driven by this hypothesis, as will be further discussed in Chapter 3.

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Summary

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This chapter examined the literature informing the development of the study, including both the independent and dependent variable selection, to understand how mentoring influences leadership development at different institutions. Literature related to leadership thought, including the need for leadership in a changing society and the evolution of this thought has been explored as has the literature related to leadership education. A broad overview of mentoring literature was shared as was literature tying mentoring to leadership. The chapter then proceeded through a discussion of institutional type differences

and information regarding the Carnegie Classification, and concluded with further examination of the theoretical framework that undergirds the study's development. The information shared in this chapter provided a foundation for the study's methodological development, which will be explained in Chapter 3.

CHAPTER 3. METHODOLOGY

Overview

The purpose of this study was to test the hypothesis that institutions of different Carnegie Classifications influence student outcomes differently. As Chapter 2 indicated, a great deal of literature has focused on leadership development, mentoring, and differential institutional effects and outcomes. As effective leadership is a necessity in the 21st century (Barkema et al., 2001; Bennis, 2007; Lichtenstein et al., 2006; Sandmann & Vandenberg, 1995; Rosenthal et al., 2009), an understanding of how mentoring influences leadership capacity in various institution types not only addresses a void in the literature but also provides information to those who have opportunities to improve practice in higher education.

The methodological approach utilized in this study is explored in this chapter. The chapter begins with an examination of the methodology, including the philosophical assumptions undergirding the study's development, the research questions that guided the study, and the conceptual framework utilized. Within this methods section, the data source, population and sample, instrumentation, variables, data collection procedures, and analyses techniques are explored. Finally, the chapter will conclude with ethical issues and delimitations and limitations of the methods utilized.

Methodological Approach

Philosophical assumptions

This study was a post-positivist, quantitative study. As found in Phillips and Burbules (2000), those from the post-positivist perspective "have grounds, or warrants, for asserting the beliefs, or conjectures, that we hold as scientists…but these grounds are not

indubitable. Our warrants for accepting these things can be withdrawn in the light of further investigation" (p. 26). This study was expost facto in that the relationship between variables was explored after the fact through the utilization of secondary survey data, the 2009 Multi-Institutional Study of Leadership.

Research questions

The research questions guiding this study were

1. What are the demographic characteristics of students who responded to the 2009 Multi-Institutional Study of Leadership survey? To what extent do they differ by Carnegie Classification?

2. What are the demographics of students' most significant mentor (gender, race, and role)? To what extent do they differ by Carnegie Classification?

3. Are there statistically significant differences in the precollege measure of socially responsible leadership, based on Carnegie Classification?

4. Are there statistically significant differences in type of mentoring, for leadership empowerment or personal development, based on Carnegie Classification?

5. Are there statistically significant differences in pretest measures and outcome measures related to individual measures of spirituality, based on Carnegie Classification?

6. Are there statistically significant differences in the omnibus measure of socially responsible leadership, based on Carnegie Classification?

7. To what extent do demographic characteristics and precollege leadership, environmental variables related to mentoring, college experiences, and institution

type being attended influence socially responsible leadership capacity? What are the

unique effects based on Carnegie Classification?

Input-Environment-Output Model and research questions

As indicated in Chapter 2, the overarching conceptual model driving this study was

Astin's (1993) I-E-O model. As stated in Campbell et al. (*in press*), "This model posits that

the combination of students' pre-college characteristics together with the college

environment contribute to student outcome achievement" (p. 11). Astin (1993) found that

this model could be used to understand how environmental factors influence student

outcomes by looking at how these outcomes vary with different environmental conditions.

To answer the research questions, the variables in the study were operationalized into

the conceptual model, as indicated in Figure 3.1. A sequential hierarchical regression

analysis was conducted for each of the Carnegie Classifications to understand the unique

effects of the input and environmental variables on the dependent variable, which was

socially responsible leadership capacity.

Block 1 – (Input) Demographics

- Racial group membership (Q53a)
- Gender (Q30a)
- US Generational Status (Q57)

Block 2 – (Input) HS Experiences/ Leadership Pretests

- Involvement in hs clubs, sports, service (construct of Q9)
- Involvement in community orgs (construct of Q10a, 10c, 10d, 10f)
- Precollege leadership training (10g)
- Omnibus SRLS pretest (scale)
- Leadership efficacy pretest (scale)
- Efficacy of cognitive skills (scale)

Block 3 – (Input) Academic Background

- Transfer student status (Q1)
- GPA (Q37)
- Academic Discipline (Q7)
- Class year (Q3)

Block 4 – (Environment) Institutional Characteristics

- Size
- Control

Block 5 – (Environment) College Experiences

Socio-Cultural Discussions (scale)

Residence On/Off Campus (Q40)

Leadership/Community Service Involvement

- Leadership Activities (construct of Q19)
- Active Member Frequency on Campus (Q15a)
- Active member Frequency off Campus (Q15c)
- Positional Leadership Frequency on Campus (Q15b)
- Positional Leadership Frequency off Campus (Q15d)
- Engaged in Community Service (Q6)

Work

- Working off campus (Q4)
- Working on campus (Q5)

Social Change Behaviors (scale)

Block 6 – (Environment) Mentoring Experiences

- Faculty mentor frequency (Q17b1)
- Staff mentor frequency (Q17b2)
- Employer mentor frequency (Q17b3)
- Community mentor frequency (Q17b4)
- Parent mentor frequency (Q17b5)
- Student mentor frequency (Q17b6)

Block 7 – (Environment) Most Significant Mentor

- Role of most significant mentor (Q17c)
- Gender of most significant mentor (Q17d)
- Race of most significant mentor (Q17e)
- Mentor Behaviors
  Mentorship for leadership empowerment (construct of Q17f1-5)
  Mentorship for personal development (construct of Q17f4-10)

Output Variable (Dependent variable)

- Omnibus Scale Measure of Socially Responsible Leadership Capacity

Figure 3.1. Study operationalized into Astin's (1993) Input-Environment-Output Model. Blocks 1, 2 and 3 include input variables prior to a student's involvement in the college environment. Blocks 4, 5, 6 and 7 include environmental variables related to a student's experience during college. The output is the measure of socially responsible leadership.

Methods

Data source

The data for this study came from the 2009 MSL. This data set contains information from a quantitative national survey. The survey was designed to be cross-sectional and causal comparative (Campbell et al., *in press*). The main scale within the MSL utilized the Social Change Model developed at Higher Education Research Institute (1996) as the theoretical framework for understanding leadership outcomes. As mentioned, the conceptual framework was based on an adaptation of Astin's (1993) I-E-O model.

Population and sample

Population

The institutional population included all institutions asked to participate in the survey through an open invitation. The institutions invited to participate were members of various listserves. At the student level, the population was all students who attend the 101 institutions within the United States that participated in the survey (Dugan & Komives, 2009).

Sample

Institutional sample. The institutional sample included 101 institutions in the United States that responded to the open invitation in the spring and summer of 2008. Listserves, such as the National Association of Student Personnel Administrators Knowledge Community of Student Leadership Programs, American College Personnel Association Commission on Student Involvement, Association of Leadership Educators, International Leadership Association, and the National Clearinghouse for Leadership Programs, were utilized to present the institutional invitation. Of the 104 institutions enrolled to participate,

103 participated, and 101 of these were located within the United States. The institutions participating represented 31 states, as well as the District of Columbia (Dugan & Komives, 2009).

   Student sample. At institutions with student populations greater than 4,000 students, a random sample of students was invited to participate. For institutions with a student population below this threshold, all students were invited to participate. Sample size was determined with a desired confidence level of 95%, with a 3% confidence interval. Of the 337,482 students invited to participate, 115,632 responded, for a response rate of 34%. Once manipulated cases were removed, 115,582 were usable responses (Dugan & Komives, 2009). A subsample of 57,713 of the student participants responded to the subsample questions related to mentoring and this served as the sample utilized in this study.

Survey instrument

   The 2009 MSL instrument was utilized to obtain the information contained in the data set. The MSL utilized as its primary scale the Socially Responsible Leadership Scale developed by Tyree (1998), which measures the eight core values of the Social Change Model. In addition, scales measuring leadership efficacy, cognitive skills, campus climate, sociocultural issue discussions, social change behaviors, and mentoring were included in this version of the MSL. Of these scales this particular study utilized all but campus climate and mentoring scale measures (Multi-Institutional Study of Leadership, 2009).

   This version of the MSL was piloted in June 2008 (Dugan & Komives, 2009). The pilot study was conducted at the University of Maryland with a random sample of 3,000. Of those invited to participate, 660 students responded for a response rate of 22%. In addition, in October 2008, a validation study was conducted (Dugan & Komives, 2009).

The 2009 MSL included seven major sections with a total of 40 questions. The first section, College Information, included seven questions, several with multiple parts. The questions in this section varied in formatting and included multiple choice and fill-in-the-blank. The section, Your Perceptions Before Enrolling in College, included six questions with multiple parts to each question. Each of these questions was measured on a Likert scale. The third section of the survey, Your Experiences in College, included six questions, each with a variety of parts. Some of the questions within this section were yes/no questions about involvement in particular activities, while others related to amount of involvement on a Likert scale. It was within this section that questions related to mentoring were asked. Some of these questions were multiple choice, while others were measured on a Likert scale. Section four of the survey, Assessing Your Growth, consisted of the questions related to the dependent variable in this study, socially responsible leadership. This section consisted of only one question consisting of 71 items. These items were a part of the Socially Responsible Leadership Scale, and respondents were asked to rate responses on a Likert scale. Section five of the survey, Thinking More About Yourself, consisted of five questions, each with multiple parts. The questions in this section were multiple choice, and some were measured on a Likert scale. The sixth section of the survey, Your College Climate, consisted of only one set of questions with multiple parts that were rated on a Likert scale. The seventh and final section, Background Information, consisted of 14 questions. This section asked for basic demographic information in a variety of formats (National Clearinghouse for Leadership Programs, 2011).

Socially Responsible Leadership Scale

The Socially Responsible Leadership Scale (SRLS-R3) was an integral component of the MSL and this study. The omnibus measure of socially responsible leadership serves as the dependent variable in this study. Therefore, additional discussion of the development and current version of the scale utilized for this study is warranted.

Instrument design. The main scale utilized in the MSL is the SRLS-R3. This scale has gone through several revisions. The first version of this instrument was designed by Tyree (1998) to provide a measure of socially responsible leadership. The instrument was designed to measure for the eight values, including consciousness of self, congruence, and commitment; group values of common purpose, collaboration, and controversy with civility; society/community value of citizenship; and change.

Several phases of data collection, including pilot studies, were utilized in the development of this first original version of the Socially Responsible Leadership Scale (Tyree, 1998). Questions in both this original version of the scale and the version utilized in this study were on a Likert-type scale. In considering the scale to utilize in the SRLS, Tyree (1998) worked to ensure that respondents could discriminate between the various responses included in each question.

Reliability and validity. The original SRLS was tested for reliability and validity, and both provided positive results. Table 3.1 provides information on the measured reliability of the various versions of the SRLS. The eight constructs all yielded high reliability. As indicated in Urdan (2010), "A common rule of thumb is that when a set of items has an alpha level of .70 or higher, it is considered acceptably reliable" (p. 178).

As Tyree (1998) suggested, "The validity of an instrument is the degree to which it measures what it is designed to measure" (p. 65). With this particular survey, construct validity is important as measures of the values are represented by constructs from the survey. The original instrument was rated by several groups to ensure it measured components of the Social Change Model and that statistical tests of validity of factors yielded positive results (Tyree, 1998).

In addition to validity and reliability, additional precautions were taken to account for respondent bias. As people often respond in a manner that appears more socially desirable, a 10-item scale was incorporated into the original SRLS to measure the amount of respondent bias present. This 10-item scale was established shortened from a longer 33-item Marlowe-Crown Social Desirability Scale (Tyree, 1998).

Socially Responsible Leadership Scale – Version 3

Table 3.1 displays the reliability of several of the versions of SRLS and is adapted from Komives (2009). The version utilized in the 2009 MSL was the SRLS-R3 (Dugan & Komives, 2009). Campbell et al. (*in press*) found that the omnibus measure from the SRLS-R3 "explained over 70% of the variance across the eight measures" (p. 15) related to socially responsible leadership. As stated in Dugan and Komives (2009), the SRLS-R3 contains "an expanded citizenship scale that raised reliability from 2006 version" (p. 1). Reliability of the SRLS-R3 can be found in the last column of Table 3.1. Cronbach's alpha of the omnibus variable was calculated for the subsample in this study and reliability was found to be .963 (α = .963).

Table 3.1

Reliability Levels for Versions of the Socially Responsible Leadership Scale

Reliability levels for all scales	Tyree	MSL 2006	MSL 2009
Congruence	.82	.80	.85
Commitment	.83	.83	.84
Collaboration	.77	.82	.83
Common purpose	.83	.82	.85
Controversy with civility	.69	.77	.75
Citizenship	.92	.77	.91
Change	.78	.81	.83
Omnibus SRLS	-	-	.96
Omnibus SRLS Pretest	-	-	.73

Note. Adapted from Komives, 2009. SRLS is the Socially Responsible Leadership Scale and MSL is the Multi-Institutional Study of Leadership.

Additional scale measures

As indicated, additional scales were included in the 2009 MSL, and a number of these scales were utilized in this study. Table 3.2 displays the reliability of the scales utilized in this study from Komives (2009). Chronbach's alpha (α) was calculated for each of the scale measures for the subsample utilized in this study. The cognitive skills pretest, composed of five items, was found to have a reliability of .823 (α = .823). The leadership efficacy pretest had a reliability of .871 (α = .871) and was composed of four items. The socio-cultural conversations with peers scale, composed of six items had a reliability of .907 (α = .907). The social change behaviors scale, composed of ten items, had reliability of .902 (α = .902). The spirituality pretest, composed of three items, was found to have a reliability of.815 (α = .815). Finally, the spirituality scale, composed of five items, was found to have a reliability of .912 (α = .912). The reliability of each of the scale measures within the subsample was similar to that of past research. Morgan, Leech, Gloeckner, and Barrett (2010) found an

alpha greater than .70 ($\alpha > .70$) to have good reliability, a metric which all of these scales

met.

Table 3.2

Reliability Levels for Multi-Institutional Study of Leadership 2009 Scales Utilized in this
Study

Scale	Reliability
Cognitive development Pretest	.82
Leadership efficacy Pretest	.87
Sociocultural Discussions	.90
Social change behaviors	.90
Spirituality pretest	.81
Spirituality	.91

Note. Adapted from Komives, 2009. MSL is the Multi-Institutional Study of Leadership.

Data collection

Students were invited to participate in the survey by a personal email from the Center

for Student Studies, an independent research organization specializing in studies that span

multiple campuses (Center for Student Studies, 2011). The survey was web based and was

distributed in the spring of 2009. Informed consent was required, and Institutional Research

Board approval was attained by the University of Maryland at each campus. Students

received up to three invitations to participate in the study before they were not contacted

again (Dugan & Komives, 2009).

Variables in the study

Variables in the 2009 MSL included demographic and classification variables,

precollege experiences, pretest, campus experiences (environment), and outcome measures

(Multi-Institutional Study of Leadership, 2009). Table 3.3 displays the demographic

variables analyzed using cross-tabulation to answer questions one and two of this study, as

well as the coding scheme for each of these variables in this study. The grouping variable in

both of these analyses was Carnegie Classification of the institution. Question one focused

on demographics of respondents and included variables of age, racial group membership,

gender, sexual orientation, disability, US generational status, religious preference, highest

degree earned by parent, parent combined salary, transfer student status, GPA and major.

Academic major for both demographic analysis and the regression analysis were recoded into

academic discipline, informed by the National Survey of Student Engagement codebook

(2011). Question two focused on demographics of respondents' most significant mentors by

institution type and included role, race and gender of a respondent's most significant mentor.

Table 3.3

Demographic Variables and Coding for Research Questions One and Two

Dependent variables	Coding
Age (Q29)	Open-ended (recoded into ranges)
Racial group membership (Q33a)	1 = White/Caucasian 2 = Middle Eastern 3 = African American/Black 4 = American Indian/Alaska native 5 = Asian American/Asian 6 = Latino/Hispanic 7 = multiracial 8 = race/ethnicity not included above
Gender (Q30a)	1 = female 2 = male 3 = transgender
Sexual orientation (Q31)	1 = heterosexual 2 = bisexual 3 = gay/lesbian 4 = questioning 5 = rather not say
Disability (Q35a)	1 = yes 2 = no
US generational status (Q32)	1 = your grandparents, parents, AND you were born in the United States 2 = both of your parents AND you were born in the U.S.

Table 3.3 (continued)

Dependent variables	Coding
	3 = you were born in the U.S., but at least one of your parents was not
	4 = you are a foreign born, naturalized citizen
	5 = you are a foreign born, resident alien/permanent resident
	6 = international student
Religious preference (Q36)	1 = Agnostic, 2 =Atheist, 3 = Baptist, 4 = Buddhist, 5 = Catholic, 6 = Church of Christ, 7 = Eastern Orthodox, 8 = Episcopalian, 9 = Hindu, 10 = Islamic, 11 = Jewish, 12 = LDS (Mormon), 13 = Lutheran, 14 = Methodist, 15 = Presbyterian, 16 = Quaker, 17 = Seventh Day Adventist, 18 = Unitarian/Universalist, 19 = UCC/Congregational, 20 = other Christian, 21 = other Religion, 22 = None
Highest degree earned by parent/guardian (Q38)	1 = less than a high school diploma or less than a GED
	2 = high school diploma or a GED
	3 = some college
	4 = associate's degree
	5 = bachelor's degree
	6 = master's degree
	7 = doctorate or professional degree
	8 = don't know
Parent combined salary (Q39)	1 = less than $12,500
	2 = $12,500-$24,999
	3 = $25,000-$39,999
	4 = $40,000-$54,999
	5 = $55,000-$74,999
	6 = $75,000-$99,999
	7 = $100,000-$149,999
	8 = $150,000-$199,999
	9 = $200,000 and over
	10 = don't know
	11 = rather not say
Transfer student status (Q1)	1 = started here
	2 = started elsewhere
GPA (Q37)	1 = 3.50-4.00
	2 = 3.00-3.49
	3 = 2.50-2.99
	4 = 2.00-2.49
	5 = 1.99 or less
	6 = no college GPA
Major (Q27)	Arts & humanities (10 = Foreign language and literature, 7 = Humanities, and 21 = Visual & performing arts)
	Biological/life sciences = 3

Table 3.3 (continued)

Dependent variables	Coding
	Business = 4
	Education = 5
	Engineering = 8
	Social Sciences (9 = Ethnic, cultural studies, and area studies, 19 = Public administration, and 20 = Social sciences)
	Physical sciences (14 = Math, 17 = Physical sciences)
	Professional (2 = Architecture/urban planning, 11 = Health-related fields, 18 = Preprofessional)
	Other (1 = Agriculture, 4 = Communication, 6 = Computer science, 13 = Liberal/general studies, 15 = Multi/interdisciplinary studies, 16 = Parks, recreation, leisure studies, sports management)
	Undecided = 22
Role of most significant mentor (Q17c)	Faculty/instructor
	Student affairs professional staff
	Employer
	Other student
Gender of most significant mentor (Q17d)	1 = female
	2 = male
	3 = transgender
Race of most significant mentor (Q17e)	1 = White/Caucasian
	2 = Middle Eastern
	3 = African American/Black
	4 = American Indian/Alaska native
	5 = Asian American/Asian
	6 = Latino/Hispanic
	7 = Multiracial
	8 = Unsure
	9 = Race/ethnicity not indicated above

Note. Items in parentheses indicate the question within the survey from which the variable information was attained. GED is General Education Development. GPA is grade point average.

To answer questions three through six, several scales and composite variables served as dependent variables in the one-way analysis of variance tests. Table 3.4 exhibits each of these research questions along with corresponding statistical technique, independent and dependent variables, and variable coding for this study.

Table 3.4

Research Questions, Corresponding Statistical Type and Technique, Independent and Dependent Variables, and Coding

Q#	Statistic type	Statistical technique	Independent variable	Dependent variable	Coding
3	Inferential	One-way ANOVA (Welch's) & Dunnett's C Post-hoc	Carnegie Classification	Omnibus SRLS pretest scale	1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree
4	Inferential	One-way ANOVA (Welch's) & Dunnett's C Post-hoc	Carnegie Classification	Mentoring for leadership empowerment (composite of Q17f1-Q17f3)	*each of the observed variables Q17f1-3 is measured on the same scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree)
				Mentoring for personal development (factor of Q17f4-Q17f10)	*each of the observed variables Q17f4-10 is measured on the same scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree)
5	Inferential	One-way ANOVA (Welch's) & Dunnett's C Post-hoc	Carnegie Classification	Spirituality pretest (PRESPIR)	1 = never, 2 = sometimes, 3 = often, 4 = very often
		One-way ANOVA & Scheffe Post-hoc	Carnegie Classification	Spirituality outcomes	1 = never, 2 = sometimes, 3 = often, 4 = very often
6	Inferential	One-way ANOVA (Welch's) & Dunnett's C Post-hoc	Carnegie Classification	Omnibus SRLS	1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Note. Items in parentheses indicate the question within the survey from which the variable information was attained. SRLS is Socially Responsible Leadership Scale.

Table 3.5 displays the input variables utilized in the culminating sequential, hierarchical regression analyses, which includes demographic variables for baccalaureate, master's, doctoral/research, and research (very high) institutions. These variables included those utilized in Campbell et al. (*in press*) but also several other variables. As indicated in Figure 3.1, variables entered into block 1 included background demographics, such as race, gender, and US generational status. Block 2 variables included high school experiences and leadership pretests. Block 3 included academic background characteristics, including transfer student status, grade point average (GPA), major, and class year. Within the

regression of students at associate's institutions, major and class year were omitted as they were deemed not as applicable in these institutions.

Several of the input variables were recoded for use in the regression analyses. For example, racial group membership was categorical, but for purposes of the regression analysis, a dichotomous variable was needed. Therefore variables such as this were recoded into multiple dichotomous variables. In addition, as very few individuals identified as transgendered, these cases were recoded as missing.

Table 3.5

Input Variables and Coding Entered into Blocks One Through Three of the Sequential, Hierarchical Regression Analyses for Baccalaureate, Master's, Doctoral/Research, and Research (Very High) Institutions

Variable	Coding
Racial group membership (Q33a)	
White/Caucasian	0 = no, 1 = yes
AfricanAmerican/Black	0 = no, 1 = yes
AsianAmerican/Asian	0 = no, 1 = yes
Latino/Hispanic	0 = no, 1 = yes
Gender (Q30a)	0 = female, 1 = male
US generational status (Q32)	0 = US domestic, 1 = international
Involvement in high school clubs and sports (composite of Q9)	Range 6-24; each of 6 observed variables scaled 1-4
Involvement in high school community organizations (composite of Q10a, Q10c, Q10d, Q10f)	Range 4-16; each of 4 observed variables scaled 1-4
Precollege leadership training (10g)	1 = never, 2 = once, 3 = sometimes, 4 = often
Omnibus pretest	1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree
Leadership efficacy pretest	1 = not at all confident, 2 = somewhat confident, 3 = confident, 4 = very confident

Table 3.5 (continued)

Variable	Coding
Cognitive skills pretest	1 = not at all confident, 2 = somewhat confident, 3 = confident, 4 = very confident
Transfer student status (Q1)	0 = started here, 1 = started elsewhere
GPA (Q37)	1 = 1.99 or less
	2 = 2.00-2.49
	3 = 2.50-2.99
	4 = 3.00-3.49
	5 = 3.50-4.00
Academic major (Q27)	
Biological sciences	0 = no, 1 = yes
Business	0 = no, 1 = yes
Education	0 = no, 1 = yes
Engineering	0 = no, 1 = yes
Social sciences	0 = no, 1 = yes
Arts & humanities	0 = no, 1 = yes
Physical sciences	0 = no, 1 = yes
Undecided	0 = no, 1 = yes
Class year (Q3)	1 = freshman, 2 = sophomore, 3 = junior, 4 = senior

Note. Items in parentheses indicate the question within the survey from which the variable information was attained. GPA is grade point average

Table 3.6 displays the environmental variables incorporated into the model. Again, a number of these variables were included in Campbell et al. (*in press*). However, several other independent variables, observed variables, scales, and constructs were entered into these blocks. These variables related to experiences while in higher education. Similar to the input variables, several environmental variables were recoded in order to be dichotomous.

Block 4 contained institution size and institutional control (public or private). Originally institution affiliation was included but was dropped due to issues of multicollinearity with the institutional control variable. Admissions selectivity was also included but was dropped as frequencies indicated some classifications only had one type of selectivity. The regression for students at associate's institutions did not include these variables as they were deemed inapplicable. Block 5 included several environmental

variables related to student experiences while in college. Within associate's institutions, two variables were dropped due to issues of multicollinearity. Variables related to frequency of mentoring for growth and development by different types of individuals were included in block 6. Finally, block 7 consisted of the roles, genders, and races of the students' reported most significant mentors, as well as constructs related to mentorship for leadership empowerment and mentorship for personal development.

Table 3.6

Environmental Variables and Coding Entered into Blocks Four through Seven of the Sequential, Hierarchical Regression Analyses for Baccalaureate, Master's, Doctoral/research, and Research (very high) Institutions

Variables	Coding
Institution size	2 = medium, 3 = large
Control	1= public, 2 = private
Sociocultural conversations	0 = never, 1 = sometimes, 2 = often, 3 = very often
On or off campus living (Q40)	0 = off campus, 1 = on campus
Leadership activities (composite of Q19)	Range 0-48; each of 16 observed variables scaled 0 = never, 1 = once, 2 = sometimes, 3 = often
Community service (Q6)	0 = no, 1 = yes
Working off campus (Q4)	0 = no, 1 = yes
Working on campus (Q5)	0 = no, 1 = yes
Active member frequency on campus (15a)	1 = never, 2 = once, 3 = sometimes, 4 = often, 5 = much of the time
Positional leadership frequency on campus (15b)	1 = never, 2 = once, 3 = sometimes, 4 = often, 5 = much of the time
Active member frequency off campus (15c)	1 = never, 2 = once, 3 = sometimes, 4 = often, 5 = much of the time
Positional leadership frequency off campus (15d)	1 = never, 2 = once, 3 = sometimes, 4 = often, 5 = much of the time

Table 3.6 (continued)

Variables	Coding
Social change behaviors (15d)	1 = never, 2 = sometimes, 3 = often, 4 = very often
Type of mentor for growth/development (Q17b) (frequency)	
Faculty mentor frequency	0 = never, 1 = once, 2 = sometimes, 3 = often
Staff mentor frequency	0 = never, 1 = once, 2 = sometimes, 3 = often
Employer mentor frequency	0 = never, 1 = once, 2 = sometimes, 3 = often
Community member mentor frequency	0 = never, 1 = once, 2 = sometimes, 3 = often
Parent mentor frequency	0 = never, 1 = once, 2 = sometimes, 3 = often
Student mentor frequency	0 = never, 1 = once, 2 = sometimes, 3 = often
Significant mentor gender	0 = female, 1 = male
Role of most significant mentor (Q17c)	
Significant mentor faculty member	0 = no, 1 = yes
Significant mentor staff	0 = no, 1 = yes
Significant mentor employer	0 = no, 1 = yes
Significant mentor student	0 = no, 1 = yes
Race of most significant mentor (Q17e)	
African American significant mentor	0 = no, 1 = yes
Asian American significant mentor	0 = no, 1 = yes
Latino/Hispanic significant mentor	0 = no, 1 = yes
Unsure race of significant mentor	0 = no, 1 = yes
Mentoring for leadership empowerment (Composite of Q17f1-3)	Range 3-15; each of 4 observed variables scaled 1-5
Mentoring for personal development (Composite of Q17f4-10)	Range7-35; each of 7 observed variables scaled 1-5

Note. Items in parentheses indicate the question within the survey from which the variable information was attained.

As in Campbell et al. (*in press*), the dependent variable was socially responsible leadership capacity, "which is theoretically grounded in the social change model of leadership development (HERI, 1996) and consistent with contemporary conceptualizations of leadership (Dugan, 2009)" (p. 14). The omnibus variable explained earlier served as the dependent variable representing socially responsible leadership capacity in this study.

As Table 3.7 displays, two factor analyses were conducted so that the resulting factors could be utilized in the ANOVA and regression analyses. The observed variables in

these analyses were related to mentorship for leadership empowerment and mentorship for personal development. The variables entered into these analyses were informed by the scales utilized in the development of the MSL.

Table 3.7

Variables Utilized in the Principal Components Factor Analyses

Variable represented	Corresponding observed variables utilized in analysis	Coding scheme (for all variables in chart)
Mentoring for leadership empowerment Mentoring for personal development	Q17f1-Q17f3 Q17f4-Q17f10	1 = strongly disagree 2 = disagree 3 = neutral 4 = agree

Data analysis and analytic approaches

The Statistical Package for the Social Sciences Version 18 was utilized in conducting the analyses needed to answer the respective research questions. Descriptive, inferential, and multivariate statistics were utilized to answer the research questions.

It is important to note that with each of these analyses, the unit of analysis was the student. Umbach and Kuh (2006) discuss the tradeoffs between aggregating data at the institutional level and losing individual characteristics, or tying an institutional-level characteristic to a particular individual and assuming that the institution has a similar effect on all students (p. 174).

Descriptive statistics

To answer the first two research questions, simple descriptive statistics were calculated utilizing cross tabulations. In each of these crosstabs, the analytic group was Carnegie Classification. The frequencies and percentages of the respective variables were calculated to better understand the demographics among institutions of different Carnegie Classifications in order to make comparisons among these institution types.

Inferential statistics

Urdan (2010) described inferential statistics as "statistics, derived from sample data that are used to make inferences about the population from which the sample was drawn" (p. 11). Research questions three through six required use of inferential statistics to answer questions about the larger population, and the specific techniques for each of these questions can be found in Table 3.4. To answer research questions three through six, one-way ANOVA was utilized. Tabachnick and Fidell (2007) stated that "Analysis of variance is used to compare two or more means to see if there are any statistically significant differences among them" (p. 37). Utilizing ANOVA allowed the researcher to understand if differences exist in the given dependent variables among different Carnegie Classifications. Gravetter and Wallnau (2009) found assumptions in ANOVA to include independence of samples, normal distribution of population from which the sample is drawn, and equal variances of the populations from which the sample is drawn (p. 432).

In the ANOVA, cases were excluded listwise, histograms were constructed to determine skewness of frequency, and Levene's test of homogeneity of variance was conducted. Results of these analyses are shared in Chapter 4. With those samples in which Levene's test of homogeneity of variance was violated, the Welch statistic was calculated and Dunnett's C was utilized as a post-hoc test. As found on the IBM Statistical Package for the Social Sciences (SPSS) statistic website (2012), the Welch statistic is "an approximate test for equality of means without the homogenous variance assumption" (para 1.) This same website (2012) found that Dunnett's C could be utilized when unequal sample variance is found, but comparisons are pair wise, and sample sizes are large. Where equal variance was

found, the Scheffe post-hoc test was utilized as it is a very conservative post-hoc test (Gravetter & Wallnau, 2009).

With the use of inferential statistics, it was important to understand significance, the alpha level, and the tradeoffs between Type 1 and Type 2 errors. For questions three through six, the null hypothesis was that no statistically significant difference existed in the independent variables based on Carnegie Classification. As stated in Gravetter and Wallnau (2009), "The alpha level, or the level of significance, is a probability value that is to define the very unlikely sample outcomes if the null hypothesis is true" (p. 235). This is also the risk of a Type 1 error and is the risk of incorrectly rejecting a null hypothesis. On the other hand, a Type 2 error is the risk of not rejecting a null hypothesis when a statistically significant difference does exist.

Multivariate statistics

Sequential hierarchical regression analysis was utilized to answer the final research question. The major benefit of sequential hierarchical regression analysis is that one can see the impact each additional block has on the predictive model. Tabachnick and Fidell (2007) stated, "The researcher normally assigns order of entry of variables according to logical or theoretical considerations" (p. 138). As represented by Figure 3.1, in this study Astin's (1993) conceptual framework, I-E-O Model, provided guidance as to which variables to enter into each block. As stated in Campbell et al. (*in press*), "This model posits that the combination of students' pre-college characteristics together with the college environment contribute to student outcome achievement" (p. 11).

Tabachnick and Fidell (2007) found one practical issue of multiple regression to include the ratio of cases within the sample compared to number of independent variables

incorporated into the model. Additional concerns included outliers in both the independent and dependent variables; multicollinearity and singularity of independent variables; normality, linearity and homoscedasticity of residuals; independence of errors; and absence of outliers within the solution (p. 123-128). Tables 3.5 and 3.6 indicate the temporal order in which the various variables were entered into the model.

Principal Components Factor Analysis

In order to utilize several of the factors in the ANOVA analyses, as well as the culminating regression analysis, a principal components factor analysis was conducted. As Gall, Borg, and Gall (1996) found, "Factor analysis provided an empirical basis for reducing all these variables to a few factors by combining variables that are moderately or highly correlated with each other" (p. 447-448). Principal components factor analysis reveals correlations among variables to expose underlying phenomena among these variables.

Factor loadings were analyzed before including in a construct variable. "The sizes of the loadings reflect the extent of relationship between each observed variable and each factor" (Tabachnick & Fidell, 2007, p. 609). This process was informed by the scales utilized in creation of the MSL. For this particular study, a rather conservative factor loading cutoff of 0.6 was utilized to include any given variable in a given factor. As indicated by Comrey and Lee (1992), a factor loading of 0.63 is considered very good.

Ethical Issues in the Study

As this study utilized a secondary data set containing information from a number of institutions rather than one institution, the ethical issues were more limited than if collecting data oneself. The data was not tied directly to an individual or institution, yet ensuring that the data set was stored in an ethical manner and was not shared with others was very

important. As with any study, accurately portraying the results of the analyses to depict the true nature of the findings was very important. Finally, as the primary investigators of the original data set required that the researcher indicate which variables he planned to explore, but provided access to the full data set, it was important to follow protocol in not exploring additional variables and relationships without prior consent.

Delimitations

This study is delimited to students who participated in the 2009 MSL and who chose to respond to the survey. In addition, it is further delimited to those who were a part of the mentoring subsample. Therefore, conclusions drawn can only be applied to students at other nonparticipating institutions if done with careful consideration.

Limitations

Several limitations of this study should be noted. The first limitation is related to the use of Carnegie Classification to represent institution type and to analyze institutional type differences on outcome measures. Critics such as McCormick and Zhao (2005) would note the risk in generalizing institutions by Carnegie Classifications without recognition of the differences within these institutions. If in future studies, additional classification variables are available, it would be worth exploring the use of these variables as opposed to Carnegie Classification.

Another limitation is related to the subsample data set size. At associate's institutions, the sample size was not large enough to include all the variables that were analyzed in all other regressions. This limited the number of comparisons that could be made between associate's institutions and other institution types. In addition, associate's institutions are uniquely related to a number of variables, such as major and class year that

limited the comparison of the effects of these variables between associate's institutions and other institutions.

As will be discussed further in Chapters 4 and 5, another limitation of the sample was the very homogenous nature of respondents in terms of racial background. Campbell et al. (*in press*) found that students at four minority serving institutions were surveyed. However, given the great importance of supporting individuals of all backgrounds as they develop socially responsible leadership, greater racial diversity would have provided even more valuable results.

Next, several of the input variables in this study were quasi-pretests that asked students to consider their involvement and perceptions prior to attending college. The more rigorous approach would be to have a longitudinal study in which high school students reported their perceptions and then later were surveyed in college. This would ensure that students' perceptions were not influenced by more recent experiences. In addition, self-report bias is present in any type of self-reported data. This is a limitation as seen in the inflated percentage of students indicating that they have a GPA above 3.00. Nonresponse bias is also a limitation inherent in survey data with no control group.

A final limitation of this study is that it only analyzes leadership outcomes in terms of socially responsible leadership. The input and environmental variables included in this study, including mentoring variables, may have a much different influence on other types of leadership outcomes. This would warrant further study.

Summary

In summary, this chapter provided an overview of the methodology utilized in this study as well as the delimitations and limitations. A post-positivist, quantitative perspective

drove the development of this study, which utilized a secondary data set, the 2009 MSL.

Seven research questions provided the foundation of the study, which was operationalized in

Astin's (1993) I-E-O model. Variables were studied utilizing descriptive, inferential, and

multivariate statistics. The results of the study must be carefully generalized as the study was

delimited to students at institutions participating in the study. Chapter 4 shares the results of

the study and Chapter 5 includes a discussion of these results as well as implications.

CHAPTER 4. RESULTS

Overview

This chapter includes the findings of the study. The first section of the chapter offers findings related to the demographic characteristics of students who responded to the survey. In addition, this section addresses the extent to which these characteristics vary by institution type. The subsequent sections of this chapter are organized by research question and corresponding findings. Cross-tabulation was completed on age, racial group membership, sexual orientation, disability, U.S. generational status, religious preference, highest degree earned by a parent, parents' combined salary, transfer student status, GPA, and academic discipline. These results are presented in three charts.

Similar to the first section, the second section includes results of cross tabulation. The cross tabulation was completed to answer the second research question of demographic characteristics of students' most significant mentors, and the extent to which they differ by Carnegie Classification. Demographic characteristics of mentors included the mentor's role at the institution as well as gender and race. These results are also presented in a chart to highlight comparisons among the various institution types.

The third section reports the findings of a one-way analysis of variance conducted on the omnibus SRLS pretest measure. This analysis was completed to determine if a statistically significant difference exists among institutions related to the precollege measure of the omnibus variable representing socially responsible leadership. The precollege variable was included as an independent variable in the culminating regression analyses. The findings of the Dunnett's C post hoc analysis are presented, as is the mean and standard deviations of the variables. In addition, the frequency distribution is presented in a histogram format.

Similarly, the fourth section reports the findings of one-way ANOVA conducted on two composites variables that were eventually included in the regression analyses. These ANOVAs were completed to determine if a statistically significant difference exists among institutions related to mentoring for leadership empowerment and mentoring for personal development. Results of the factor analyses conducted on the associated observed variables are presented in tables. Result of the ANOVA, the findings of the Dunnett's C post hoc analyses, the mean and standard deviations of the variables and frequency histograms are presented.

The fifth section reports the findings of one-way ANOVA conducted on a pretest measure of spirituality, as well as an outcome measure of spirituality. These analyses were completed to determine if a statistically significant difference exists among institutions related to spirituality. Similar to the other sections, the findings of the Dunnett's C post hoc analysis, the mean and standard deviations of the variables, and frequency histograms are presented. For the outcome measure of spirituality, the Levene's test indicated equal variances could be assumed so the Scheffe post hoc test was used to determine where the significant differences exist.

Section six once again reports the results of a one-way ANOVA. This ANOVA, however, was related to the dependent variable within the study, the omnibus measure of the SRLS-R3. Like the other ANOVA, results include a frequency histogram as well as the means and standard deviations of the measures for the various Carnegie Classifications. This section contains the post hoc analysis results, which were analyzed with Dunnett's C since equal variances could not be assumed.

Finally, section seven exhibits the findings of the sequential, hierarchical regression analyses conducted to answer both parts of question seven. This question sought to understand the extent to which demographic characteristics and precollege leadership, environmental variables related to mentoring, college experiences, and institution type being attended influence socially responsible leadership capacity. Five separate tables with accompanying narrative exhibit the results block by block for each of the five Carnegie Classifications, and then a sixth table, a comparison table, exhibits the correlation, final standardized and unstandardized betas and significance of each of the variables for the baccalaureate, master's, doctoral/research, and research (very high) institutions.

Analysis of Research Questions

Demographic characteristics of respondents

The first research question asked what the demographic characteristics of students who responded to the 2009 Multi-Institutional Study of Leadership survey were, and to what extent they differed by Carnegie Classification. In order to answer this question cross tabulations were utilized to determine frequencies of the respective characteristics as well as percentages associated with each Carnegie Classification. Depending on the demographic characteristic, the number of missing cases due to non-response for associate's institutions ranged from 29 ($n = 29$) to 215 ($n = 215$). At baccalaureate institutions, missing cases ranged from 1,851 ($n = 1,851$) to 1,866 ($n = 1,866$). Missing cases at master's institutions ranged from 564 ($n = 564$) to 4,049 ($n = 4,049$). At doctoral/research institutions, missing cases ranged from 169 ($n = 169$) to 1,176 ($n = 1,176$). Finally, at research (very high) institutions, missing cases ranged from 686 ($n = 686$) to 4,607 ($n = 4,607$).

Age, racial group membership, gender, sexual orientation, and disability

As exhibited in Table 4.1, most students at each of the institutions were of traditional college age (18-22). The greatest number of students at each institution was between ages 20 and 21, with most others between ages 18 and 19. At associate's institutions, 45.7% (n = 276) of students were between ages 18 and 21, as were 76% (n = 6,397) of students at baccalaureate institutions, 72% (n = 11,849) of students at master's institutions, 75.6% (n = 3,087) of students at doctoral/research institutions, and 75.6% (n = 12,313) of students at research (very high) institutions. It is worth noting, however, that 11.8% (n = 71) of respondents at associate's institutions were between ages 40 and 59, whereas at all other institutions, this percentage was below 3%.

Analysis of racial backgrounds found the highest percentage of respondents at each of the institution types was White/Caucasian. At associate's institutions, 52.6% (n = 317) were White/Caucasian, as were 69.4% (n = 7,130) at baccalaureate institutions, 78.7% (n = 12,933) at master's institutions, 73.2% (n = 2,991) at doctoral/research institutions, and 75.8% (n = 12,339) at research (very high) institutions. The second most common race identified at associate's institutions was African American/Black, which included 24.2% (n = 146), and then Latino/Hispanic, which included 11.4% (n = 69). At baccalaureate institutions, the second most common race identified was Asian American/Asian, which included 6.0% (n = 503), followed by African American/Black, which included 4.9% (n = 416). At master's institutions, the second most common race identified was African American/Black, which included 7.8% (n = 1,275), followed by Latino/Hispanic, which included 6.7% (n = 1,099). At doctoral/research institutions, the second most common race identified was Asian American/Asian, which included 11.6% (n = 473), followed closely by

Latino/Hispanic, which included 10.7% (n = 438). At research (very high) institutions, the second most common race identified was Asian American/Asian, which included 12.4% (n = 2,026), followed by Latino/Hispanic, which included 6.6% (n = 1,077).

The majority of respondents at each of the institution types were female: 67.9% (n = 410) at associate's institutions, 65.6% (n = 5,525) at baccalaureate institutions, 67.3% (n = 11,080) at master's institutions, 64.4% (n = 2,634) at doctoral/research institutions and 61.6% (n = 10,037) at research (very high) institutions. Very few individuals identified as themselves transgendered at any of the institutions. No individuals identified themselves as transgendered at associate's institutions, only 0.2% (n = 15) did so at baccalaureate institutions, 0.1% (n = 19) did so at master's institutions, 0.2% (n = 8) did so at doctoral/research institutions, and 0.1% (n = 22) did so at research (very high) institutions.

When asked about sexual orientation, the vast majority of students indicated that they were heterosexual. Interestingly, the next most frequently indicated response was rather not say. Forty-three students (7.1%) at associate's institutions, 2.5% (n = 208) of respondents at baccalaureate institutions, 2.6% (n = 427) of respondents at master's institutions, 2.2% (n = 91) of respondents at doctoral/research institutions, and 2.2% (n = 360) of respondents at research (very high) institutions indicated that they would rather not say. The next most frequent response for each of the institution types was bisexual.

The greatest percentage of students reporting disabilities was at associate's institutions, with 16.9% (n = 102) of respondents identifying themselves as having a disability. This was followed by similar statistics at the other institution types: baccalaureate 14.9% (n = 1,259), master's 14.4% (n = 2,367), doctoral/research 14.1% (n = 577) and research (very high) 11.6% (n = 1,896).

Table 4.1

Age, Racial Group Membership, Gender, Sexual Orientation, and Disability of Study Sample by Carnegie Classification

Demographic characteristics	Carnegie Classification									
Age	Associate's		Baccalaureate		Master's		Doctoral/research		Research (very high)	
n = 57,713	*n* = 604	Percent	*n* = 8,416	Percent	*n* = 16,457	Percent	*n* = 4,085	Percent	*n* = 16,298	Percent
Under 18	0	0.0	1	0.0	2	0.0	0	0.0	1	0.0
18-19	136	22.5	2,835	33.7	5,463	33.2	1,412	34.6	5,469	33.6
20-21	140	23.2	3,562	42.3	6,386	38.8	1,675	41.0	6,844	42.0
22-23	61	10.1	1,131	13.4	2,445	14.9	725	17.8	2,586	15.9
24-29	111	18.4	459	5.5	1,133	6.9	178	4.4	821	5.0
30-34	46	7.6	141	1.7	345	2.1	41	1.0	229	1.4
35-39	36	6.0	99	1.2	240	1.5	24	0.6	115	0.7
40-59	71	11.8	178	2.1	425	2.6	28	0.7	218	1.3
60 and up	3	0.5	10	0.1	18	0.1	2	0.1	15	0.1
Racial group membership	Associate's		Baccalaureate		Master's		Doctoral/research		Research (very high)	
n = 57,713	*n* = 603	Percent	*n* = 8,411	Percent	*n* = 16,428	Percent	*n* = 4,084	Percent	*n* = 16,278	Percent
White/Caucasian	317	52.6	7,130	69.4	12,933	78.7	2,991	73.2	12,339	75.8
Middle Eastern	15	2.5	81	1.0	216	1.3	80	2.0	264	1.6
African American/Black	146	24.2	416	4.9	1,275	7.8	243	6.0	996	6.1
American Indian/Alaska Native	18	3.0	145	1.7	489	3.0	70	1.7	252	1.5
Asian American/Asian	59	9.8	503	6.0	1,089	6.6	473	11.6	2,026	12.4
Latino/Hispanic	69	11.4	332	3.9	1,099	6.7	438	10.7	1,077	6.6
Multiracial	23	3.8	260	3.1	517	3.1	147	3.6	534	3.3
Race/Ethnicity not included above	13	2.2	182	2.2	209	1.3	48	1.2	186	1.1
Gender	Associate's		Baccalaureate		Master's		Doctoral/research		Research (very high)	
n = 57,713	*n* = 604	Percent	*n* = 8,426	Percent	*n* = 16,466	Percent	*n* = 4,091	Percent	*n* = 16,301	Percent
Female	410	67.9	5,525	65.6	11,080	67.3	2,634	64.4	10,037	61.6
Male	194	32.1	2,886	34.3	5,367	32.6	1,449	35.4	6,242	38.3
Transgender	0	0.0	15	0.2	19	0.1	8	0.2	22	0.1

Table 4.1 (continued)

Demographic characteristics	Carnegie Classification									
Sexual orientation	Associate's		Baccalaureate		Master's		Doctoral/research		Research (very high)	
$n = 57,713$	$n = 602$	Percent	$n = 8,418$	Percent	$n = 16,456$	Percent	$n = 4,089$	Percent	$n = 16,299$	Percent
Heterosexual	526	87.4	7,827	93.0	15,275	92.8	3,832	93.7	15,117	92.7
Bisexual	19	3.2	178	2.1	333	2.0	63	1.5	353	2.2
Gay/lesbian	9	1.5	128	1.5	290	1.8	61	1.5	296	1.8
Questioning	5	0.8	77	0.9	131	0.8	42	1.0	173	1.1
Rather not say	43	7.1	208	2.5	427	2.6	91	2.2	360	2.2
Disability	Associate's		Baccalaureate		Master's		Doctoral/research		Research (very high)	
$n = 57,713$	$n = 603$	Percent	$n = 8,423$	Percent	$n = 16,461$	Percent	$n = 4,089$	Percent	$n = 16,290$	Percent
Yes	102	16.9	1,259	14.9	2,367	14.4	577	14.1	1,896	11.6
No	501	83.1	7,164	85.1	14,094	85.6	3,512	85.9	14,394	88.4

United States generational status, religious preference, highest degree earned by a parent, and parents' combined salary

As Table 4.2 shows, the highest percentage of students at each of these institution types was born in the United States and had grandparents and parents who were born in the United States as well. At associate's institutions, the next largest percentage of students (18.1%, $n = 109$) was foreign born or resident alien/permanent resident. At both baccalaureate and master's institutions, the next largest group was students who were born in the United States with parents who were also born in the United States. This group represented 12.7% ($n = 1,067$) and 13.9% ($n = 2,288$) of students, respectively. At both doctoral/research and research (very high) institutions, the second largest percentage of students was born in the United States with at least one parent who was not. This group represented 16.0% ($n = 654$) and 14.3% ($n = 2,334$) of respondents at these institutions, respectively.

Religious preference of students was analyzed. The highest percentage of respondents at each of the institutions identified as Catholic. The next largest percentage of respondents indicated none at associate's (15.3%, $n = 92$), master's (12.4%, $n = 2,041$), and research (very high; 11.9%, $n = 1,929$) institutions. At baccalaureate (12.6%, $n = 1,064$) and doctoral/research (12.3%, $n = 501$), institutions, the next largest percentage of students identified as other Christian.

A difference between associate's institutions and all other types of institutions was with regard to the highest degree attained by a parent. At associate's institutions, the greatest percentage of respondents, 21.9% ($n = 132$), indicated the highest degree attained be a parent was a high school diploma or a general education diploma (GED). At all of the other four

institution types, the largest percentage of respondents indicated the highest degree attained by a parent was a bachelor's degree. This included 28.9% (n = 2,433) at baccalaureate institutions, 28.8% (n = 4,734) at master's institutions, 32.2% (n = 1,314) at doctoral/research institutions, and 29.1% (n = 4,734) at research (very high) institutions.

Another difference found between associate's institutions and all other institutions related to parents' combined salaries. The greatest percentage of respondents at all institution types except research (very high) indicated that they did not know what their parents' combined salaries were. At research (very high) institutions, the greatest percentage of respondents, 17.2% (n = 701), indicated a combined parent salary between $100,000 and $149,999. Next to responding that they did not know, the second largest percentage of students at associate's institutions, 13.3% (n = 80), indicated a combined salary between $12,500 and $24,999. At baccalaureate, master's and doctoral/research institutions, the second most frequently indicated response was between $100,000 and $149,999. This figure included 13.1% (n = 1,105) at baccalaureate institutions, 12.9% (n = 2,120) at master's institutions, 13.4% (n = 547) at doctoral/research institutions.

Table 4.2

U.S. Generational Status, Religious Preference, Highest Degree by Parent, and Parent Combined Salary of Study Sample by Carnegie Classification

Demographic characteristics	Carnegie Classification									
U.S. generational status	Associate's		Baccalaureate		Master's		Doctoral/research		Research (very high)	
n = 57,713	*n* = 601	Percent	*n* = 8,419	Percent	*n* = 16,461	Percent	*n* = 4,089	Percent	*n* = 16,299	Percent
Grandparents, parents, and you born in the U.S.	273	45.4	6,025	71.6	11,086	67.3	2,506	61.3	10,326	63.4
Parents and you born in U.S.	67	11.1	1,067	12.7	2,288	13.9	485	11.9	1,902	11.7
You were born in U.S., but at least one parent was not	69	11.5	594	7.1	1,656	10.1	654	16.0	2,334	14.3
Foreign born, naturalized citizen	49	8.2	204	2.4	604	3.7	176	4.3	762	4.7
Foreign born, resident alien/permanent resident	109	18.1	120	1.4	379	2.3	131	3.2	446	2.7
International student	34	5.7	409	4.9	448	2.7	137	3.4	521	3.2
Religious preference	Associate's		Baccalaureate		Master's		Doctoral/research		Research (very high)	
n = 57,713	*n* = 602	Percent	*n* = 8,413	Percent	*n* = 16,442	Percent	*n* = 4,081	Percent	*n* = 16,276	Percent
Agnostic	34	5.6	647	7.7	1,244	7.6	297	7.3	1,701	10.5
Atheist	23	3.8	339	4.0	597	3.6	111	2.7	920	5.7
Baptist	55	9.1	623	7.4	1,164	7.1	476	11.7	1,254	7.7
Buddhist	16	2.7	63	0.7	224	1.4	76	1.9	249	1.5
Catholic	137	22.8	1,624	19.3	5,217	31.7	1,221	29.9	4,014	24.7
Church of Christ	22	3.7	115	1.4	310	1.9	54	1.3	242	1.5
Eastern Orthodox	11	1.8	48	0.6	120	0.7	30	0.7	133	0.8
Episcopalian	6	1.0	241	2.9	205	1.2	81	2.0	233	1.4
Hindu	6	1.0	23	0.3	58	0.4	25	0.6	162	1.0
Islamic	24	4.0	46	0.5	155	0.9	49	1.2	195	1.2
Jewish	11	1.8	235	2.8	257	1.6	50	1.2	725	4.5
LDS (Mormon)	6	1.0	539	6.4	50	0.3	8	0.2	91	0.6

Table 4.2 (continued)

Carnegie Classification	Associate's		Baccalaureate		Master's		Doctoral/research		Research (very high)	
Lutheran	7	1.2	677	8.0	996	6.1	102	2.5	666	4.1
Methodist	15	2.5	471	5.6	676	4.1	241	5.9	739	4.5
Presbyterian	12	2.0	371	4.4	423	2.6	180	4.4	599	3.7
Quaker	1	0.2	35	0.4	22	0.1	6	0.1	33	0.2
Seventh Day Adventist	5	0.8	15	0.2	37	0.2	9	0.2	29	0.2
Unitarian/Universalist	2	0.3	57	0.7	73	0.4	11	0.3	101	0.6
UCC/Congregational	1	0.2	57	0.7	126	0.8	19	0.5	113	0.7
Other Christian	89	1.0	1,064	12.6	1,989	12.1	501	12.3	1,763	10.8
Other religion	27	4.5	221	2.6	458	2.8	84	2.1	385	2.4
None	92	15.3	902	10.7	2,041	12.4	450	11.0	1,929	11.9
Highest degree by parent	Associate's		Baccalaureate		Master's		Doctoral/research		Research (very high)	
$n = 57,713$	$n = 603$	Percent	$n = 8,418$	Percent	$n = 16,457$	Percent	$n = 4,085$	Percent	$n = 16,289$	Percent
Less than a high school diploma or less than a GED	50	8.3	139	1.7	445	2.7	108	2.6	302	1.9
High school diploma or a GED	132	21.9	876	10.4	2,566	15.6	445	10.9	1,587	9.7
Some college	99	16.4	1,028	12.2	2,567	15.6	534	13.1	1,841	11.3
Associate's degree	62	10.3	602	7.2	1,478	9.0	244	6.0	1,017	6.2
Bachelor's degree	113	18.7	2,433	28.9	4,734	28.8	1,314	32.2	4,743	29.1
Master's degree	86	14.3	2,082	24.7	3,195	19.4	921	22.5	3,942	24.2
Doctorate or professional degree	36	6.0	1,158	13.8	1,211	7.4	474	11.6	2,702	16.6
Don't know	25	4.1	100	1.2	261	1.6	45	1.1	155	1.0
Parent combined salary	Associate's		Baccalaureate		Master's		Doctoral/research		Research (very high)	
$n = 57,713$	$n = 602$	Percent	$n = 8,412$	Percent	$n = 16,445$	Percent	$n = 4,085$	Percent	$n = 16,276$	Percent
Less than $12,500	58	9.6	393	4.7	829	5.0	153	3.7	556	3.4
$12,500-$24,999	80	13.3	434	5.2	1,055	6.4	182	4.5	746	4.6

Table 4.2 (continued)

Carnegie Classification	Associate's		Baccalaureate		Master's		Doctoral/research		Research (very high)	
$25,000-$39,999	72	12.0	566	6.7	1,380	8.4	244	6.0	1,008	6.2
$40,000-$54,999	60	10.0	627	7.5	1,501	9.1	285	7.0	1,154	7.1
$55,000-$74,999	66	11.0	924	11.0	2,008	12.2	372	9.1	1,728	10.6
$75,000-$99,999	54	9.0	928	11.0	1,903	11.6	451	11.0	1,971	12.1
$100,000-$149,999	38	6.3	1,105	13.1	2,120	12.9	547	13.4	2,644	16.2
$150,000-$199,999	10	1.7	503	6.0	882	5.4	275	6.7	1,232	7.6
$200,000 and over	10	1.7	884	10.5	988	6.0	535	13.1	1,819	11.2
Don't know	112	18.6	1,467	17.4	2,721	16.5	701	17.2	2,252	13.8
Rather not say	42	7.0	581	6.9	1,058	6.4	340	8.3	1,166	7.2

Note. GED is General Educational Development.

Transfer status, grade point average, and academic discipline

At the time of the survey, the majority of students were enrolled at the same institution where they began. The highest percentage of students who started elsewhere was found at master's institutions, where 25.0% ($n = 4{,}971$) had started elsewhere (Table 4.3). This was followed closely by associate's institutions (24.4%, $n = 192$), doctoral/research institutions (20.3%, $n = 1{,}035$), research (very high) institutions (19.6%, $n = 3{,}961$), and baccalaureate institutions (15.2%, $n = 1{,}536$).

Over 70% of students who responded at these institutions reported that they held GPAs above a 3.00. The largest percentage of respondents at associate's (38.1%, $n = 230$), baccalaureate (38.5%, $n = 3{,}238$), and research (very high; 39.4%, ($n = 6{,}427$) institutions indicated that they held between a 3.50 and 4.00. At master's and doctoral/research institutions, the greatest percentage of students indicated a GPA of between 3.00 and 3.49 (38.6%, $n = 6{,}360$ and 38.5%, $n = 1{,}573$, respectively).

Table 4.3 indicates how each of the academic majors was categorized into a discipline, which was guided by the National Survey of Student Engagement (2011) codebook. The largest percentage of respondents at associate's institutions (24.0%, $n = 145$) indicated that they were majoring in a professional degree. The largest percentage of respondents at baccalaureate (18.8%, $n = 1{,}639$) and research (very high; 17.4%, $n = 2{,}834$) institutions indicated that they were majoring in social sciences. At master's and doctoral/research institutions, the greatest percentage (20.9%, $n = 3{,}451$; 24.2%, $n = 989$, respectively) of respondents indicated that they were majoring in business.

Table 4.3

Transfer Status, Grade Point Average (GPA), and Major of Study Sample by Carnegie Classification

Demographics	Carnegie Classification									
Transfer student status	Associate's		Baccalaureate		Master's		Doctoral/research		Research (very high)	
n = 57,713	n = 788	Percent	n = 10,103	Percent	n = 19,913	Percent	n = 5,088	Percent	n = 20,199	Percent
Started here	596	75.6	8,567	84.8	14,942	75.0	4,053	79.7	16,238	80.4
Started elsewhere	192	24.4	1,536	15.2	4,971	25.0	1,035	20.3	3,961	19.6
GPA	Associate's		Baccalaureate		Master's		Doctoral/research		Research (very high)	
n = 57,713	n = 603	Percent	n = 8,417	Percent	n = 16,460	Percent	n = 4,088	Percent	n = 16,292	Percent
3.50-4.00	230	38.1	3,238	38.5	5,969	36.3	1,544	37.8	6,427	39.4
3.00-3.49	216	35.8	3,228	38.4	6,360	38.6	1,573	38.5	6,147	37.7
2.50-2.99	117	19.4	1,500	17.8	3,171	19.3	747	18.3	2,860	17.6
2.00-2.49	27	4.5	364	4.3	785	4.8	184	4.5	691	4.2
1.99 or less	8	1.3	68	0.8	149	0.9	35	0.9	150	0.9
No college GPA	5	0.8	19	0.2	26	0.2	5	0.1	17	0.1
Major	Associate's		Baccalaureate		Master's		Doctoral/research		Research (very high)	
n = 57,713	n = 604	Percent	n = 8,422	Percent	n = 16,474	Percent	n = 4,090	Percent	n = 16,303	Percent
Arts and humanities	44	7.3	1,567	18.0	1,999	12.1	560	13.7	1,952	12
Biological sciences	17	2.8	775	8.9	1,058	6.4	238	5.8	1,397	8.6
Business	103	17.1	1,249	14.3	3,451	20.9	989	24.2	2,335	14.3
Education	48	7.9	684	7.8	1,800	10.9	200	4.9	734	4.5
Engineering	37	6.1	218	2.5	278	1.7	185	4.5	1,657	10.2
Social sciences	55	9.1	1,639	18.8	2,637	16.0	601	14.7	2,834	17.4
Physical sciences	10	1.7	688	7.9	677	4.1	100	2.4	692	4.2
Professional	145	24.0	827	9.5	2,066	12.5	535	13.1	2,197	13.5
Other	115	19.0	771	8.9	1,984	12.0	557	13.6	2,109	12.9
Undecided	30	5.0	309	3.5	524	3.2	125	3.1	396	2.4

Note. The arts and humanities category combines foreign languages and literature, humanities, and visual and performing arts; the social sciences category combines ethnic, cultural studies and area studies, public administration, and social sciences; the physical sciences category combines mathematics and physical sciences; the professional category combines architecture/urban planning, health-related fields, and preprofessional programs; the other category combines agriculture, communication, computer and information sciences, liberal/general studies, multi/interdisciplinary studies, and parks, recreation, leisure studies, and sports management.

Demographic characteristics of respondents' most significant mentor

To answer the second research question regarding the demographics of students' most significant mentors, and the extent to which they differ by Carnegie Classification, cross tabulations were once again utilized. Table 4.4 displays these results. Missing response numbers ranged from 0 ($n = 0$) to 277 ($n = 277$) at associate's institutions, 0 ($n = 0$) to 2,012 ($n = 2,012$) at baccalaureate institutions, 0 ($n = 0$) to 4,049 ($n = 4,049$) at master's institutions, 0 ($n = 0$) to 1,366 ($n = 1,366$) at doctoral/research institutions, and 0 ($n = 0$) to 5,949 ($n = 5,949$) at research (very high) institutions.

At all types of institutions, the greatest percentage of students indicated that their mentors were faculty members/instructors. These percentages were 56.9% ($n = 307$) at associate's institutions, 56.3% ($n = 4,650$) at baccalaureate institutions, 51.6% ($n = 8,011$) at master's institutions, 50.4% ($n = 1,960$) at doctoral/research institutions, and 39.8% ($n = 5,947$) at research (very high) institutions. At all five types of institutions, the next largest percentage of respondents indicated that other students were their most significant mentors, then student affairs professional staff, and finally, employers.

At each of the institution types, over half of the respondents indicated that their most significant mentors were female. This included 58.3% ($n = 316$) at associate's institutions, 52.5% ($n = 4,343$) at baccalaureate institutions, 55.2% ($n = 8,589$) at master's institutions, 54.8% ($n = 2,137$) at doctoral/research institutions, and 52.0% ($n = 7,778$) at research (very high) institutions. A relatively small percentage of students indicated that their mentors were transgendered. This included 2.6% ($n = 14$) at associate's institutions, 0.8% ($n = 69$) at baccalaureate institutions, 0.8% ($n = 125$) at master's institutions, 1.2% ($n = 48$) at doctoral/research institutions, and 0.6% ($n = 85$) at research (very high) institutions.

The majority of respondents at each institution type indicated that their most significant mentors were White/Caucasian. This included 52.1% ($n = 282$) at associate's institutions, 81.3% ($n = 6,712$) at baccalaureate institutions, 76.1% ($n = 11,804$) at master's institutions, 74.8% ($n = 2,910$) at doctoral/research institutions, and 72.9% ($n = 10,888$) at research (very high) institutions. The next largest response for most significant mentors' race was of more than one race identified. Students could indicate multiple racial categories and many did indicate more than one racial category. More than one race was indicated by 15.0% ($n = 81$) of respondents at associate's institutions, 5.6% ($n = 466$) at baccalaureate institutions, 6.4% ($n = 989$) at master's institutions, 7.2% ($n = 281$) at doctoral/research institutions, and 7.0% ($n = 1,040$) at research (very high) institutions.

Table 4.4

Demographics of Most Significant Mentor of Study Sample by Carnegie Classification

Demographics of mentor	Carnegie Classification									
Role of most significant mentor	Associate's		Baccalaureate		Master's		Doctoral/research		Research (very high)	
$n = 57,713$	$n = 540$	Percent	$n = 8,265$	Percent	$n = 15,531$	Percent	$n = 3,891$	Percent	$n = 14,936$	Percent
Faculty/instructor	307	56.9	4,650	56.3	8,011	51.6	1,960	50.4	5,947	39.8
Student affairs professional staff	70	13	655	7.9	1,478	9.5	325	8.4	1,628	10.9
Employer	53	6.5	499	6	1,333	8.6	315	8.1	1,466	9.8
Other student	110	13.5	2,461	29.8	4,709	10.3	1,291	33.2	5,895	39.5
Gender of most significant mentor	Associate's		Baccalaureate		Master's		Doctoral/research		Research (very high)	
$n = 57,713$	$n = 542$	Percent	$n = 8,275$	Percent	$n = 15,562$	Percent	$n = 3,899$	Percent	$n = 14,971$	Percent
Female	316	58.3	4,343	52.5	8,589	55.2	2,137	54.8	7,778	52.0
Male	212	39.1	3,863	46.7	6,848	44.0	1,714	44.0	7,108	47.5
Transgender	14	2.6	69	0.8	125	0.8	48	1.2	85	0.6
Race of most significant mentor	Associate's		Baccalaureate		Master's		Doctoral/research		Research (very high)	
$n = 57,713$	$n = 541$	Percent	$n = 8,265$	Percent	$n = 15,511$	Percent	$n = 3,890$	Percent	$n = 14,936$	Percent
White/Caucasian	282	52.1	6,712	81.3	11,804	76.1	2,910	74.8	10,888	72.9
Middle Eastern	6	1.1	56	0.7	102	0.7	24	0.6	127	0.9
African American/Black	79	14.6	301	3.6	910	5.9	172	4.4	788	5.3
Native American	3	0.6	19	0.2	61	0.4	11	0.3	29	0.2
Asian American/Pacific Islander	17	3.1	224	2.7	348	2.2	145	3.7	816	5.5
Latino/Hispanic	16	3.0	81	1.0	340	2.2	122	3.1	374	2.5
Multiracial	12	2.2	70	0.9	153	1.0	46	1.2	131	0.9
More than one identified	81	15.0	466	5.6	989	6.4	281	7.2	1,040	7.0
Unsure	32	5.9	243	2.9	644	4.2	147	3.8	567	3.8
Race/ethnicity not indicated above	13	2.4	86	1.0	160	1.0	32	0.8	173	1.2

Pretest of the Omnibus Socially Responsible Leadership Scale

To understand how students' precollege measure of socially responsible leadership might differ by Carnegie Classification, a one-way ANOVA was conducted. A frequency was run on this measure, and as *Figure 4.1* indicates, this scale was found to have a normal distribution. The precollege leadership composite variable ranged from 1 to 5, and there were no missing cases ($n = 57,713$).
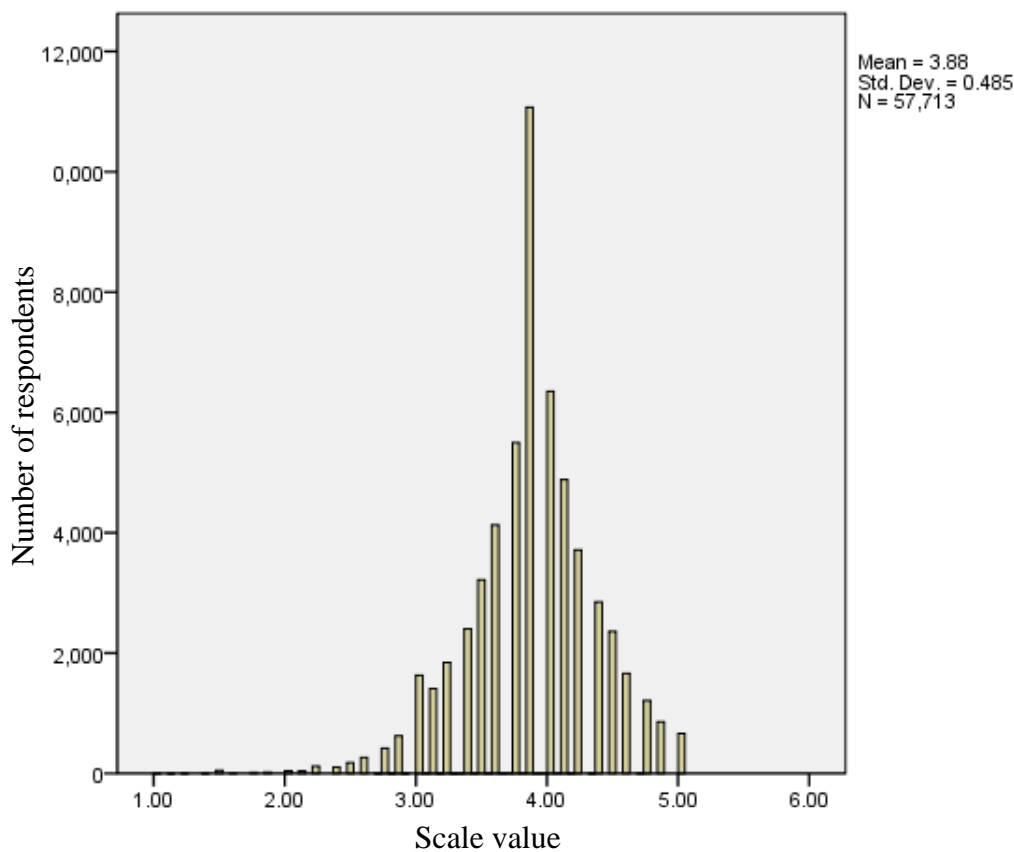
Figure 4.1. Frequency distribution of the pretest Socially Responsible Leadership Scale measure. The X axis indicates a given value of the scale with a higher response indicating a higher value related to precollege leadership and a value range from 1 to 5. The Y axis indicates the number of respondents having the given value.

The one-way ANOVA utilized the precollege omnibus SRLS measure as the dependent variable and institution Carnegie Classification as the independent variable. As

Table 4.5 indicates, a significant interaction was found between Carnegie Classification and the precollege measure, $F(4, 57708) = 22.938$, $p < .001$. Effect size (sum of squares between groups divided by the sum of squares total) was found to be .2% ($\eta^2 = .002$), indicating that .2% of the difference in the pretest of the omnibus variable could be accounted for by Carnegie Classification. According to Cohen (1988), this is a small effect size.

Table 4.5

One-Way Analysis of Variance of the Omnibus Socially Responsible Leadership Scale Pretest of Students by Carnegie Classification

Source	df	SS	MS	F	p
Between groups	4	21.548	5.387	22.938	.000
Within groups	57708	13,552.392	.235		
Total	57712	13,573.939			

Since the Levene statistic was significant, $W(4, 57708) = 10.260$, $p < .001$, equal variances could not be assumed. Welch's F was therefore utilized as a more robust test of equality of means with heterogeneity of variances. The Welch's statistic, $F(4, 5483.213) = 22.680$, $p < .001$, also provided a significant difference among the groups.

As the assumption of equal variances could not be assumed, Dunnett's C post hoc test was utilized to determine where significant differences existed. As Tables 4.6 and 4.7 indicate, a significant difference between groups was found between baccalaureate ($M = 3.872$) and master's ($M = 3.854$) institutions. A significant difference between groups was found between baccalaureate ($M = 3.872$) and doctoral/research ($M = 3.900$) institutions. A significant difference between groups was found between baccalaureate ($M = 3.872$) and research (very high; $M = 3.896$) institutions. Additional statistically significant differences

existed between master's ($M = 3.854$) and doctoral/research ($M = 3.900$) institutions and

between master's ($M = 3.854$) and research (very high) institutions ($M = 3.896$).

Table 4.6

Summary of Dunnett's C Post-Hoc Test Results Comparing the Omnibus Socially Responsible Leadership Scale Pretest by Carnegie Classification

Institution type	Mean difference	Standard error
Associate's		
to baccalaureate	.019	.019
to master's	.037	.019
to doctoral/research	−.001	.020
to research (very high)	−.005	.019
Baccalaureate		
to master's	.018*	.006
to doctoral/research	−.028*	.008
to research (very high)	−.024*	.006
Master's		
to doctoral/research	−.046*	.008
to research (very high)	−.042*	.005
Doctoral/research		
to research (very high)	.004	.008

*$p < 0.05$

Table 4.7

Means and Standard Deviations Comparing the Omnibus Socially Responsible Leadership Scale Pretest by Carnegie Classification (n = 57,713)

Institution type	n	M	SD
Associate's	817	3.891	.529
Baccalaureate	10,277	3.872	.475
Master's	20,477	3.854	.493
Doctoral/research	5,257	3.900	.489
Research (very high)	20,885	3.896	.478
Total	57,713	3.877	.485

Differences in type of mentoring by institutional type

To answer the fourth research question, two separate one-way ANOVAs were conducted with composite variables of mentoring for leadership empowerment and mentoring for personal development as dependent variables and with Carnegie Classification as the independent variable.

Mentoring for leadership empowerment

The mentoring for leadership empowerment factor had a Cronbach's alpha level of .881. It was composed of the three observed variables related to agreement with a most significant mentor doing the following: question 17f2, empower others to engage in leadership ($\eta = .922$); question 17f1, empower myself to engage in leadership ($\eta = .91$); and question 17f3, engage in ethical leadership ($\eta = .865$). As Table 4.8 indicates, the three observed variables related to mentoring for leadership empowerment emerged with factor loadings greater than 0.600 ($\eta > .600$). This factor included all three of the observed variables included in the survey to measure for mentoring for leadership empowerment.

Table 4.8

Mentoring for Leadership Empowerment Factor Loading

Factor	Factor loading
Mentoring for leadership empowerment ($\alpha = 0.881$)	
Empower others to engage in leadership	0.922
Empower myself to engage in leadership	0.910
Engage in ethical leadership	0.865

A mentoring for leadership empowerment composite variable was created by summing the three observed variables above. A frequency was run on this composite variable, and as *Figure 4.2* indicates, this variable was not found to be a normal distribution

as two additional peaks in frequencies occurred on either side of the highest measure of

frequency.
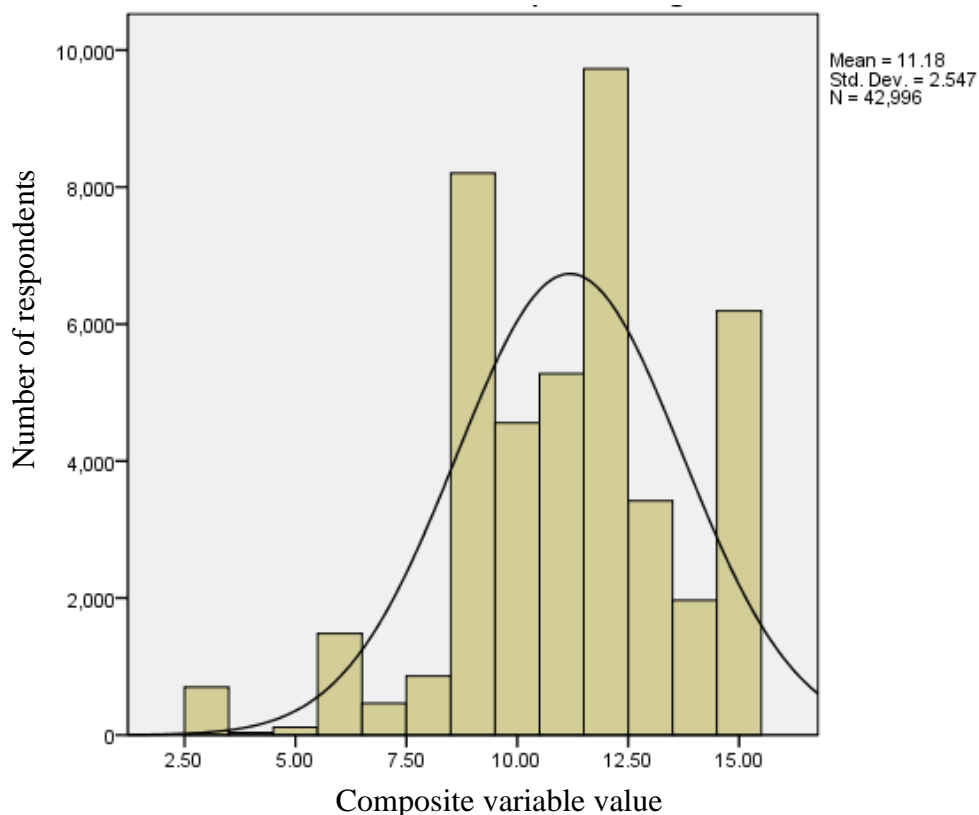
Figure 4.2. Frequency distribution of the mentoring for leadership empowerment composite variable. The X axis indicates a given value of the composite variable with a higher value indicating a greater agreement to having been mentored in this way and a value range from 3 to 15. The Y axis indicates the number of respondents having the given value.

A one-way ANOVA was conducted utilizing the mentoring for leadership

empowerment composite variable as the dependent variable and institutional Carnegie

Classification as the independent variable. The mentoring for leadership empowerment

variable ranged from 3 to 15, and there were 14,717 missing cases ($n = 42,996$). As Table

4.9 indicates, a significant interaction was found between Carnegie classification and

mentoring for leadership empowerment, $F(4, 42991) = 19.589$, $p < .001$. Effect size (sum of

squares between groups divided by the sum of squares total) was found to be .2% ($\eta^2 = .002$),

indicating that .2% of the difference in mentoring for leadership empowerment could be

accounted for by Carnegie Classification. This is a small effect size.

Table 4.9

One-way Analysis of Variance of Mentoring for Leadership Empowerment of Students by Carnegie Classification

Source	df	SS	MS	F	p
Between groups	4	514.347	128.587	19.589	.000
Within groups	42,991	278,368.529	6.475		
Total	42,995	278,882.876			

Since the Levene statistic was significant, $W(4, 42991) = 5.158$, $p < .001$, equal

variances could not be assumed. Welch's F was therefore utilized as a more robust test of

equality of means with heterogeneity of variances. The Welch's statistic, $F(4, 3678.739) =$

19.908, $p < .001$, also provided a significant difference among the groups.

Therefore, Dunnett's C post hoc test was utilized to determine where significant

differences existed. As Tables 4.10 and 4.11 indicate, a significant difference between

groups was found between baccalaureate ($M = 11.253$) and research (very high; $M = 11.036$)

institutions. Significant differences were also found between master's ($M = 11.270$) and

research (very high; $M = 11.036$) institutions and between doctoral/research ($M = 11.269$) to

research (very high; $M = 11.036$) institutions.

Table 4.10

Summary of Dunnett's C Post Hoc Test Results Comparing Mentoring for Leadership Empowerment by Carnegie Classification

Institution type	Mean difference	Standard error
Associate's		
to baccalaureate	−.164	.123
to master's	−.181	.121

Table 4.10 (continued)

Institution type	Mean difference	Standard error
to doctoral/research	−.180	.126
to research (very high)	.054	.121
Baccalaureate		
to master's	−.017	.034
to doctoral/research	−.016	.050
to research (very high)	.212*	.035
Master's		
to doctoral/research	.001	.046
to research (very high)	.234*	.029
Doctoral/research		
to research (very high)	.234*	.046

*$p < 0.05$

Table 4.11

Means and Standard Deviations Comparing Mentoring for Leadership Empowerment by Carnegie Classification (n = 42,996)

Institution type	n	M	SD
Associate's	537	11.089	2.770
Baccalaureate	8,236	11.253	2.501
Master's	15,486	11.270	2.568
Doctoral/research	3,869	11.269	2.558
Research (very high)	14,868	11.036	2.532
Total	42,996	11.184	2.547

Mentoring for personal development

As Table 4.12 indicates, the seven observed variables related to mentoring for

personal development emerged with factor loadings greater than 0.600 ($\eta > .600$). This

mentoring for personal development factor had had a Cronbach's alpha level of .869. It was

composed of the seven observed variables related to agreement of most significant mentors

encouraging someone to do the following: question 17f8, be open to new experiences (η =

.801); question 17f10, identify areas for self improvement (η = .777); question 17f9, develop

problem-solving skills (η = .776); question 17f5, be a positive role model (η = .769);

question 17f4, live up to my potential (η = .75); question 17f7, value working with others

from diverse backgrounds (η = .719); and question 17f6, mentor others (η = .677). This

factor included all seven of the observed variables included in the survey to measure for

mentoring for personal development.

Table 4.12

Mentoring for Personal Development Factor Loadings

Factor	Factor loading
Mentoring for personal development (α = 0.869)	
Be open to new experiences	0.801
Identify areas for self improvement	0.777
Develop problem-solving skills	0.776
Be a positive role model	0.769
Live up to potential	0.750
Value working with others from diverse backgrounds	0.719
Mentor others	0.677

A mentoring for personal development composite variable was created by summing

the seven observed variables above. A frequency was run on this composite variable, and as

Figure 4.3 indicates, this scale was not found to be a normal distribution as an additional

peak was found to the right of the central tendency, creating a somewhat negatively skewed

distribution. The mentoring for personal development variable ranged from 7 to 35, and

there were 14,970 missing cases (n = 42,743).
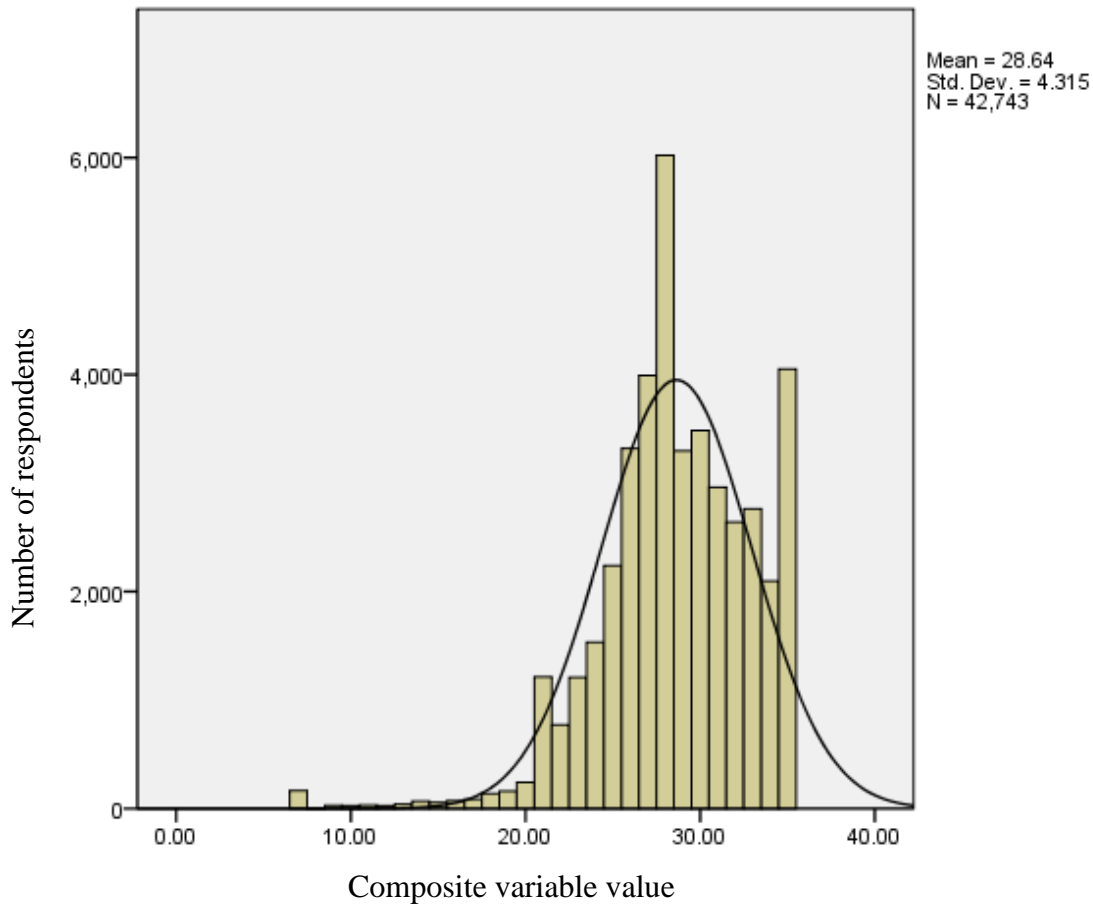
Figure 4.3. Frequency distribution of mentoring for personal development composite variable. The X axis indicates a given value of the composite variable with a higher value indicating a greater agreement to having been mentored in this way and a value range from 7 to 35. The Y axis indicates the number of respondents having the given value.

The one-way ANOVA utilized the mentoring for personal development composite variable as the dependent variable and institutional Carnegie Classification as the independent variable. As Table 4.13 indicates, a significant interaction was found between Carnegie Classification and mentoring for personal development, $F(4, 42738) = 27.199$, $p < .001$. Effect size (sum of squares between groups divided by sum of squares total) was found to be .3% ($\eta^2 = .003$), indicating that .3% of the difference in the mentoring for personal development could be accounted for by Carnegie Classification. This is a small effect size.

Table 4.13

One-Way Analysis of Variance of Mentoring for Personal Development of Students by Carnegie Classification

Source	df	SS	MS	F	p
Between groups	4	2,020.897	505.224	27.199	.000
Within groups	42738	793,875.097	18.575		
Total	42742	795,895.994			

Since the Levene statistic was significant, $W(4, 42738) = 11.823$, $p < .001$, equal variances could not be assumed. Welch's F was therefore utilized as a more robust test of equality of means with heterogeneity of variances. The Welch's statistic, $F(4, 3642.436) = 27.216$, $p < .001$, also provided a significant difference among the groups.

Therefore, Dunnett's C post hoc test was utilized to determine where significant differences existed. As Tables 4.14 and 4.15 indicate, significant differences were found between groups the following groups: baccalaureate ($M = 28.800$) and research (very high; $M = 28.346$) institutions; master's ($M = 28.807$) and research (very high; $M = 28.346$) institutions; and doctoral/research ($M = 28.802$) and research (very high; $M = 28.346$) institutions.

Table 4.14

Summary of Dunnett's C Post Hoc Test Results Comparing Mentoring for Personal Development by Carnegie Classification

Institution type	Mean difference	Standard error
Associate's		
to baccalaureate	−.330	.230
to master's	−.342	.228
to doctoral/research	−.337	.235
to research (very high)	.119	.228

Table 4.14 (continued)

Institution type	Mean difference	Standard error
Baccalaureate		
to master's	−.0117	.058
to doctoral/research	−.007	.083
to research (very high)	.449*	.058
Master's		
to doctoral/research	.005	.078
to research (very high)	.461*	.050
Doctoral/research		
to research (very high)	.456*	.078

*$p < 0.05$

Table 4.15

Means and Standard Deviations Comparing Mentoring for Personal Development by Carnegie Classification (n = 42,743)

Institution type	n	M	SD
Associate's	533	28.465	5.194
Baccalaureate	8,195	28.800	4.171
Master's	15,395	28.807	4.358
Doctoral/research	3,847	28.802	4.290
Research (very high)	14,773	28.346	4.305
Total	42,743	28.641	4.315

Pretest and outcomes of spirituality by institution type

To answer the fifth research question, two separate one-way ANOVAs were conducted with pretest and posttest scale measures of spirituality as dependent variables and with Carnegie Classification as the independent variable.

Pretest of spirituality by institution type

The spirituality pretest variable ranged from 1 to 4, and there were 3,760 missing

cases ($n = 53,953$). A frequency was run on this scale measure, and as *Figure 4.4* indicates,

this scale was found to be a relatively normal distribution.
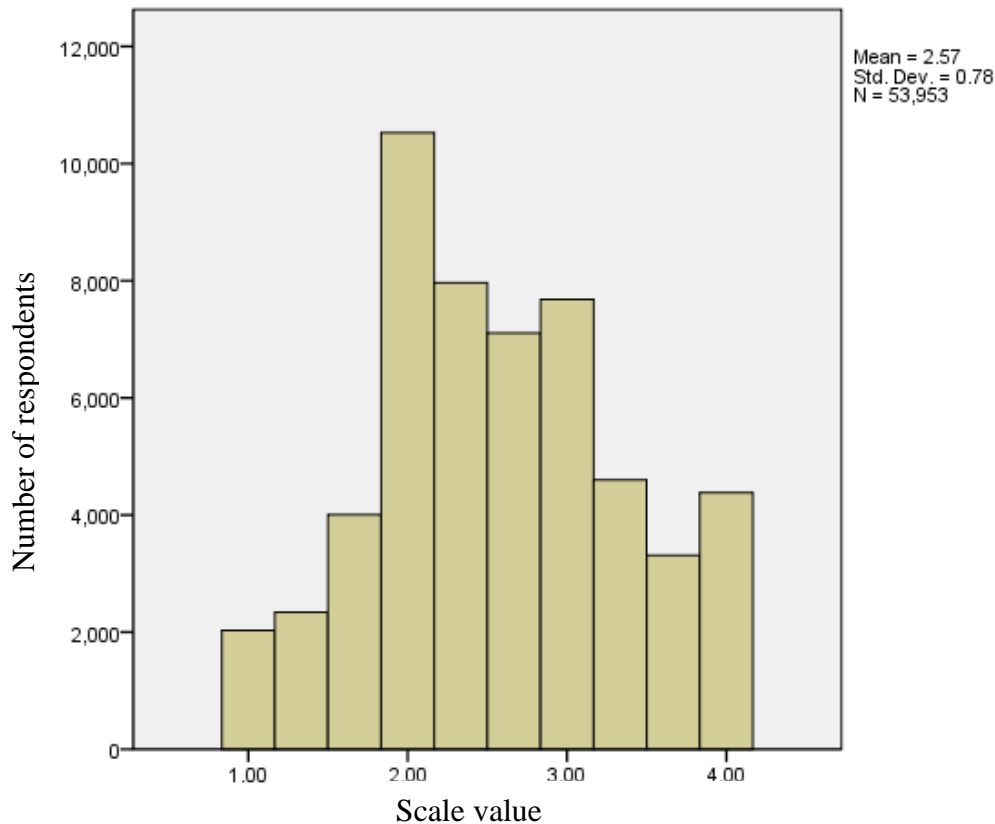
*Figure 4.4.* Frequency distribution of pretest of spirituality scale measure. The X axis
indicates a given value of the scale with a higher value indicating a higher value of
precollege spirituality and a value range from 1 to 4. The Y axis indicates the number of
respondents having the given value.

As Table 4.16 indicates, a significant interaction was found between Carnegie

classification and the pretest scale of spirituality, $F(4, 53948) = 12.664$, $p < .001$. Effect size

(sum of squares between groups divided by sum of squares total) was found to be .1% ($\eta^2 = $

.001), indicating that .1% of the difference in the pretest measure could be accounted for by

Carnegie Classification. Cohen (1988) would consider this a small effect size.

Table 4.16

One-way Analysis of Variance of Spirituality Pretest by Carnegie Classification

Source	*df*	*SS*	*MS*	*F*	*p*
Between groups	4	30.800	7.700	12.664	.000
Within groups	53948	32,802.949	.608		
Total	53952	32,833.750			

Since the Levene statistic was significant, $W(4, 53948) = 4.006$, $p < .01$, equal variances could not be assumed. Welch's F was therefore utilized as a more robust test of equality of means with heterogeneity of variances. The Welch's statistic, $F(4, 5061.654) = 12.587$, $p < .001$, also provided a significant difference among the groups.

Therefore, Dunnett's C post hoc test was utilized to determine where significant differences existed. As Tables 4.17 and 4.18 indicate, significant differences were found between the following groups: between associate's ($M = 2.638$) and master's ($M = 2.546$) institutions; between baccalaureate ($M = 2.566$) and doctoral/research ($M = 2.629$); between master's ($M = 2.546$) and doctoral/research ($M = 2.629$) institutions; between master's ($M = 2.546$) and research (very high; $M = 2.568$) institutions; and between doctoral/research ($M = 2.629$) and research (very high; $M = 2.568$) institutions.

Table 4.17

Summary of Dunnett's C Post Hoc Test Results Comparing Spirituality Pretest by Carnegie Classification

Institution type	Mean difference	Standard error
Associate's		
to baccalaureate	.071	.031
to master's	.092*	.031
to doctoral/research	.009	.032
to research (very high)	.070	.031

Table 4.17 (continued)

Institution type	Mean difference	Standard error
Baccalaureate		
to master's	.020	.010
to doctoral/research	−.062*	.014
to research (very high)	−.002	.010
Master's		
to doctoral/research	−.083*	.012
to research (very high)	−.022*	.008
Doctoral/research		
to research (very high)	.061*	.012

*$p < 0.05$

Table 4.18

Means and Standard Deviations Comparing Spirituality Pretest by Carnegie Classification (n = 53,953)

Institution type	*n*	M	SD
Associate's	751	2.638	.823
Baccalaureate	9,763	2.566	.767
Master's	19,239	2.546	.782
Doctoral/research	4,874	2.629	.774
Research (very high)	19,326	2.568	.783
Total	53,953	2.567	.780

Outcomes of spirituality by institution type

As *Figure 4.5* exhibits, the frequency distribution of spirituality outcomes was

somewhat normally distributed, with peaks to the right of the central tendency. The

spirituality variable ranged from 1 to 4, and there were 11,821 missing cases (*n* = 45,892).
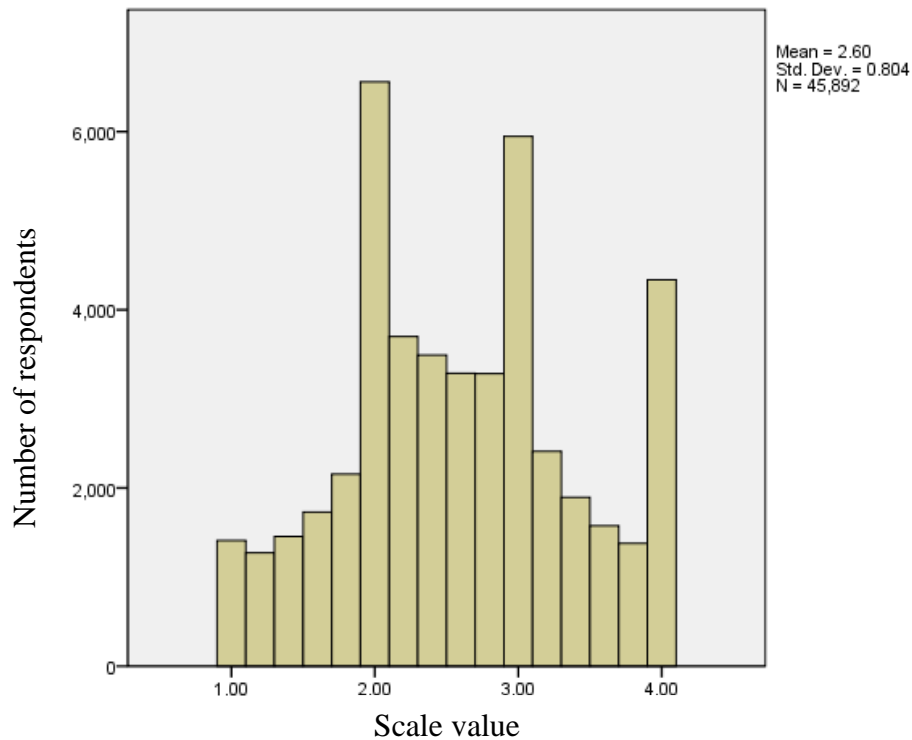
Figure 4.5. Frequency distribution of spirituality outcomes scale measure. The X axis indicates a given value of the scale with a higher value indicating a higher scale measure of spirituality with a variable range from 1 to 4. The Y axis indicates the number of respondents having the given value.

One-way ANOVA was also conducted on this variable to determine if a significant interaction was found between outcomes of spirituality and institution type. As Table 4.19 indicates, a significant interaction was found between Carnegie Classification and the outcome variable related to spirituality, $F(4, 45887) = 8.289$, $p < .001$. Effect size (sum of squares between groups/sum of squares total) was found to be .1% ($\eta^2 = .001$), indicating that .1% of the difference in the spirituality outcome measure could be accounted for by Carnegie Classification. Cohen (1988) would consider this a small effect size.

Table 4.19

One-way Analysis of Variance of Spirituality Outcomes by Carnegie Classification

Source	df	SS	MS	F	p
Between groups	4	21.395	5.349	8.289	.000
Within groups	45887	29,608.104	.645		
Total	45891	29,629.499			

Since the Levene statistic was not significant, $W(4, 45887) = .412$, $p = .800$, equal variances could be assumed. Therefore, the Scheffe post hoc test was employed, as it is a very conservative post hoc test. As Tables 4.20 and 4.21 indicate, significant differences were found between the following groups: between baccalaureate ($M = 2.603$) and doctoral/research ($M = 2.664$) institutions; between master's ($M = 2.590$) and doctoral/research ($M = 2.664$) institutions; and between doctoral/research ($M = 2.664$) and research (very high; $M = 2.588$) institutions.

Table 4.20

Summary of Scheffe Post Hoc Test Results Comparing Spirituality Outcomes by Carnegie Classification

Institution type	Mean difference	Standard error	Significance
Associate's			
to baccalaureate	.035	.034	.902
to master's	.047	.033	.731
to doctoral/research	−.026	.035	.968
to research (very high)	.050	.033	.697
Baccalaureate			
to master's	.013	.011	.847
to doctoral/research	−.061*	.015	.003
to research (very high)	.015	.011	.757

Table 4.20 (continued)

Institution type	Mean difference	Standard error	Significance
Master's			
to doctoral/research	− .073*	.014	.000
to research (very high)	.002	.009	1.000
Doctoral/research			
to research (very high)	.076*	.014	.000

*$p < 0.05$

Table 4.21

Means and Standard Deviations Comparing Spirituality Outcomes by Carnegie Classification (n = 45,892)

Institution type	*n*	*M*	*SD*
Associate's	602	2.638	.805
Baccalaureate	8,428	2.603	.798
Master's	16,462	2.590	.805
Doctoral/research	4,100	2.664	.795
Research (very high)	16,300	2.588	.806
Total	45,892	2.599	.804

Omnibus Socially Responsible Leadership Scale by institution type

To answer the sixth question, how the outcome measure of the omnibus SRLS measure may differ by Carnegie Classification, a one-way ANOVA of this scale was conducted. A frequency was run on this measure, and as *Figure 4.6* indicates, this scale was found to have a normal distribution. The omnibus variable scale measure ranged from 1 to 5, and there were no missing cases (*n* = 57,713).
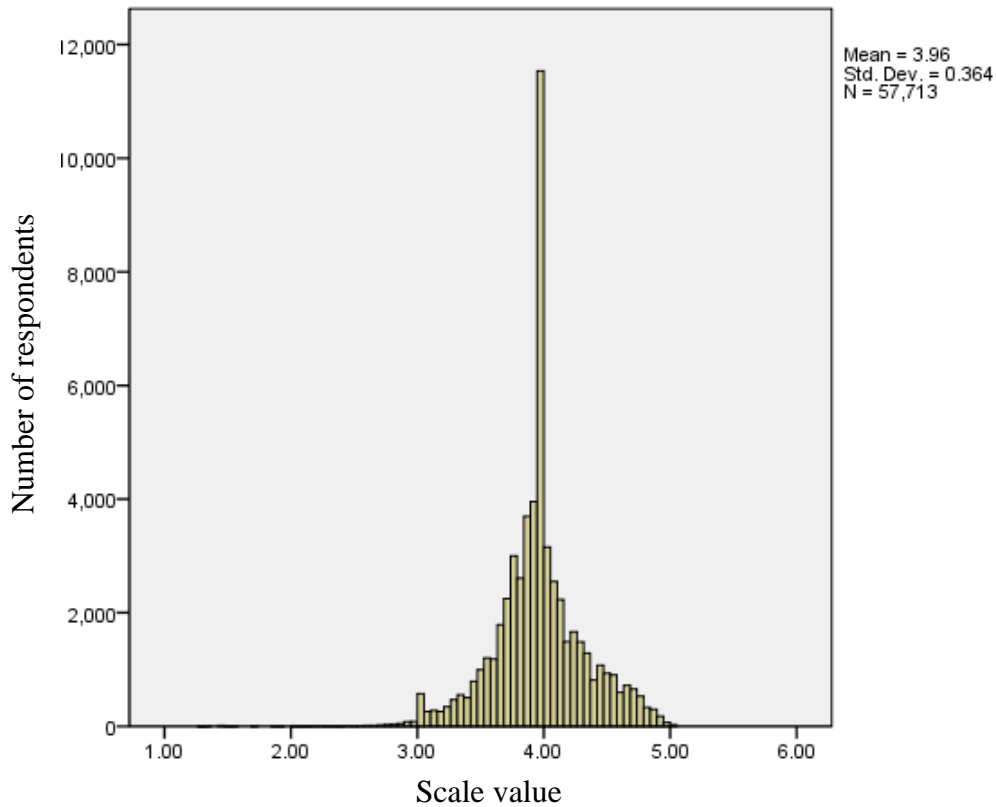
Figure 4.6. Frequency distribution of the omnibus variable of the Socially Responsible Leadership Scale. The X axis indicates a given value of the scale with a higher value indicating a higher scale measure of socially responsible leadership with a variable range from 1 to 5. The Y axis indicates the number of respondents having the given value.

The one-way ANOVA utilized the omnibus SRLS measure as the dependent variable and institutional Carnegie Classification as the independent variable. As Table 4.22 indicates, a significant interaction was found between Carnegie Classification and the precollege measure, $F(4, 57708) = 3.064$, $p < .05$. Effect size was found to be .01% ($\eta^2 = .0001$), indicating that .01% of the difference in the omnibus SRLS measure could be accounted for by Carnegie Classification. This is a small effect size.

Table 4.22

One-way Analysis of Variance of the Omnibus Socially Responsible Leadership Scale of Students by Carnegie Classification

Source	df	SS	MS	F	p
Between groups	4	1.621	0.405	3.064	.016
Within groups	57708	7,634.158	0.132		
Total	57712	7,635.779			

Since the Levene statistic was significant, $W(4, 57708) = 10.333$, $p < .001$, equal variances could not be assumed. Welch's F was therefore utilized as a more robust test of equality of means with heterogeneity of variances. The Welch's statistic, $F(4, 5496.404) = 3.004$, $p < .05$, also provided a significant difference among the groups.

As the assumption of equal variances could not be assumed, Dunnett's C post hoc test was utilized to determine where significant differences existed. As Tables 4.23 and 4.24 indicate, only one statistically significant difference was found between Carnegie Classifications and that was between master's ($M = 3.953$) and doctoral/research ($M = 3.970$) institutions.

Table 4.23

Summary of Dunnett's C Post Hoc Test Results Comparing the Omnibus Socially Responsible Leadership Scale by Carnegie Classification

Institution type	Mean difference	Standard error
Associate's		
to baccalaureate	.000	.014
to master's	.010	.014
to doctoral/research	−.007	.014
to research (very high)	.001	.014

Table 4.23 (continued)

Institution type	Mean difference	Standard error
Baccalaureate		
to master's	.010	.004
to doctoral/research	−.007	.006
to research (very high)	.001	.004
Master's		
to doctoral/research	−.017*	.006
to research (very high)	−.008	.004
Doctoral/research		
to research (very high)	.009	.006

*$p < 0.05$

Table 4.24

Means and Standard Deviations Comparing the Omnibus Socially Responsible Leadership Scale by Carnegie Classification (n = 57,713)

Institution type	*n*	*M*	*SD*
Associate's	817	3.963	.382
Baccalaureate	10,277	3.963	.350
Master's	20,477	3.953	.373
Doctoral/research	5,257	3.970	.362
Research (very high)	20,885	3.962	.361
Total	57,713	3.960	.364

Prediction of Socially Responsible Leadership capacity development

The seventh research question sought to understand the extent to which demographic

characteristics and precollege leadership, environmental variables related to mentoring,

college experiences, and institution type being attended influence socially responsible

leadership capacity, as well as the unique effects based on Carnegie Classification. In order

to answer this research question, five sequential, hierarchical regression analyses were completed, one for each institution type.

For each of these regressions, and for each of the models within each regression, a coefficient of determination R^2 was calculated, as was the adjusted R^2, to determine the amount of variance that could be accounted for by each of the independent variables. Tables 4.25 through 4.29 have been created for each regression, including the R^2, F, change in R^2, and change in F for each of the blocks. Table 4.30 represents a comparison of all of the final regressions for each of the institution types. Within that table, columns 1, 2 and 3 represent the r, β and B for each of the independent variables, respectively. Additionally, final R^2 and adjusted R^2 are exhibited.

Associate's institutions

The data set was filtered to include only students who had attended associate's institutions. After filtering, a sequential, hierarchical regression analysis was completed with these cases. Cases were excluded listwise, and the resulting sample contained 449 ($n = 449$) cases. As this sample had fewer cases than the other Carnegie Classifications, fewer variables were entered into the regression so as not to violate independent variable to cases ratios. Tabachnick and Fidell (2007) would suggest a $N \geq 50 + 8m$ rule, where N equals the number of cases and m equals the number independent variables (p. 123).

Relevant independent variables were entered in six blocks. Block 1 contained background/demographic characteristics, block 2 contained high school experiences and quasi-pretests of leadership, block 3 contained academic background characteristics, block 4 contained college experiences, block 5 contained mentoring experiences, and block 6

contained attributes of a student's most significant mentor. Table 4.25 exhibits the results of

the regression.

Table 4.25

Sequential Hierarchical Regression Analysis of Associate's Institutions Predicting Socially Responsible Leadership

Predictor	Block 1 β	Block 2 β	Block 3 β	Block 4 β	Block 5 β	Block 6 β
Block 1: background/demographics						
Race: 1 = White/Caucasian	−.079	−.066	−.076	−.058	−.073	−.045
Race: 1 = African American/Black	.005	−.074	−.070	−.085	−.095	−.101
Race: 1 = Asian American/Asian	−.076	−.081	−.084	−.054	−.052	−.057
Race: 1 = Latino/Hispanic	.060	.010	.004	−.007	−.012	−.018
Gender: 1 = male	−.095*	−.084*	−.083*	−.081*	−.081*	−.072
U.S. generational status: 1 = international	.034	−.051	−.055	−.082	−.089	−.073
Block 2: high school experiences/leadership pretests						
Involvement in high school clubs and sports		.037	.042	−.002	−.005	−.006
Involvement in community organizations		.127*	.127*	.011	.017	.008
Precollege leadership training		.049	.046	.000	.001	.023
Omnibus SRLS pretest		.420***	.414***	.407***	.403***	.400***
Leadership efficacy pretest		−.067	−.058	−.032	−.020	−.029
Cognitive skills pretest		.141**	.135*	.098*	.080	.045
Block 3: academic background						
Transfer student status: 1 = started elsewhere			−.026	−.030	−.020	−.019
GPA			.044	.035	.040	.016
Block 4: college experiences						
Sociocultural conversations				.282***	.256***	.189***
Residence on/off campus: 1 = on campus				.018	.022	.027
Leadership activities				.050	.053	.040
Community service: 1 = yes				.024	.013	.029
Working off campus: 1 = yes				.046	.053	.044
Work on campus: 1 = yes				.004	.012	.009
Positional leadership frequency on campus				.006	−.008	−.007

Table 4.25 (continued)

Predictor	Block 1 β	Block 2 β	Block 3 β	Block 4 β	Block 5 β	Block 6 β
Positional leadership frequency off campus				−.010	−.022	−.033
Social change behaviors				.169	.145**	.116*
Block 5: mentoring experiences						
Faculty mentor frequency					.084*	.023
Staff mentor frequency					−.007	−.007
Employer mentor frequency					−.028	−.070
Community member mentor frequency					.076	.058
Parent mentor frequency					.007	.002
Student mentor frequency					.063	.069
Block 6: most significant mentor						
Significant mentor staff: 1=yes						−.015
Significant mentor employer: 1 = yes						.025
Significant mentor student: 1 = yes						−.091
Significant mentor gender: 1 = male						−.020
Significant mentor race: 1 = African American/Black						.001
Significant mentor race: 1 = Asian American/Asian						.019
Significant mentor race: 1 = Latino/Hispanic						.008
Significant mentor race: 1 = unsure						−.007
Mentoring for leadership empowerment						.074
Mentoring for personal development						.191***
R^2	.028	.320	.322	.446	.462	.510
F	2.149*	17.073***	14.720***	14.846***	12.422***	10.908***
ΔR^2	.028	.291	.002	.124	.017	.048
ΔF	2.149*	31.119***	.729	10.522***	2.179*	3.968***

$*p < .05.$ $**p < .01.$ $***p < .001.$

Block 1: Background/demographics. The only variable found to be a statistically significant predictor of the dependent variable was being male ($\beta = -.095$, $p < .05$), which proved to be a negative predictor. This indicates that being male predicts a lower level of socially responsible leadership. This block predicted 2.8% of the variance in socially responsible leadership outcomes (Table 4.25).

Block 2: High school experiences/leadership. The second model included not only the background/demographics (block 1), but also high school experiences and precollege leadership measures (block 2). Being male ($\beta = -.084$, $p < .05$) remained a negative predictor in the first block. In block 2 of the model, several statistically significant, positive predictors of the dependent variable emerged, including involvement in community organizations ($\beta = .127$, $p < .05$), the omnibus SRLS pretest ($\beta = .420$, $p < .001$), and the cognitive skills pretest ($\beta = .141$, $p < .01$). In combination, blocks 1 and 2 (Table 4.25) accounted for 32% of the variance in the dependent variable. The change in R^2 from model 1 to model 2 was 29.1%.

Block 3: Academic background. Model 3 included background/demographics (block 1), high school experiences and precollege leadership measures (block 2), as well as academic background (block 3). Being male was still statistically significant ($\beta = -.083$, $p < .05$). In block 2 of the model, the three variables of involvement in community organizations ($\beta = .127$, $p < .05$), the omnibus SRLS pretest ($\beta = .414$, $p < .001$), and the cognitive skills pretest ($\beta = .135$, $p < .05$) remained statistically significant positive predictors of socially responsible leadership. Block 3 contained academic background variables of transfer student status and GPA, neither of which were statistically significant predictors. These three blocks

Block 6: Most significant mentor. Model 6 included the previous 5 blocks, with the addition of block 6, which related to a student's most significant mentor. Within this model, no background/demographic characteristics from block 1 were found to be significant. Within block 2, only the omnibus SRLS pretest ($\beta = .400$, $p < .001$) remained a statistically significant positive predictor. No academic background variables were found to be significant in block 3. Block 4 contained two statistically significant predictors. Sociocultural conversations ($\beta = .189$, $p < .001$) remained a statistically significant positive predictor as did engaging in social change behaviors ($\beta = .116$, $p < .05$).

Within this model, none of the mentoring frequencies remained a statistically significant predictor, and within block 6, only the composite measure of mentoring for personal development ($\beta = .191$, $p < .001$) emerged as statistically significant. This final model (Table 4.25) explained 51% of variance within the dependent variable, a change in R^2 of 4.8%. The final adjusted R^2 for associate's institutions was 46.3%, indicating the variables included in the model predict 46.3% of the variance in socially responsible leadership capacity.

Baccalaureate institutions

The data set was next filtered to include only students who had attended baccalaureate institutions. After filtering, a sequential, hierarchical regression analysis was completed with these cases. Cases were excluded listwise, and the resulting sample contained 7,330 ($n = 7,330$) cases. Relevant independent variables were entered in seven blocks. Block 1 contained background/demographic characteristics, block 2 contained high school experiences and quasi-pretests of leadership, block 3 contained academic background characteristics, block 4 contained institutional characteristics, block 5 contained college

experiences, block 6 contained mentoring experiences, and block 7 contained attributes of a

student's most significant mentor. The results of this regression can be found in Table 4.26.

Table 4.26

Sequential Hierarchical Regression Analysis of Baccalaureate Institutions Predicting Socially Responsible Leadership

Predictor	Block 1 β	Block 2 β	Block 3 β	Block 4 β	Block 5 β	Block 6 β	Block 7 β
Block 1: background/demographics							
Race: 1 = White/Caucasian	−.031*	−.001	−.012	−.011	−.001	−.003	−.005
Race: 1 = African American/Black	.030*	.012	.021	.020	.007	.008	.012
Race: 1 = Asian American/Asian	−.079***	−.061***	−.066***	−.066***	−.056***	−.054***	−.048***
Race: 1 = Latino/Hispanic	.022	.020	.026*	.025*	.023*	.024*	.019
Gender: 1 = male	−.057***	−.039***	−.026*	−.025*	−.027**	−.020*	−.015
U.S. generational status: 1 = international	−.037*	−.036**	−.035**	−.034**	−.043***	−.042***	−.037***
Block 2: high school experiences/leadership pretests							
Involvement in high school clubs and sports		−.015	−.009	−.008	−.045***	−.052***	−.051***
Involvement in community organizations		.101***	.100***	.101***	.001	.001	.000
Precollege leadership training		.047***	.050***	.049***	.004	.000	−.011
Omnibus SRLS pretest		.368***	.377***	.378***	.380***	.376***	.357***
Leadership efficacy pretest		.105***	.111***	.111***	.093***	.093***	.079***
Cognitive skills pretest		.111***	.092***	.092***	.066***	.068***	.071***
Block 3: academic background							
Transfer student status: 1 = started elsewhere			.005	.003	.025**	.030**	.030**
GPA			.061***	.061***	.032**	.030**	.024**
Major: 1 = biological sciences			.010	.011	.012	.012	.014
Major: 1 = business			−.018	−.017	.003	.003	.000
Major: 1 = education			.016	.016	.028**	.026*	.017
Major: 1 = engineering			−.017	−.016	−.005	−.006	−.004
Major: 1 = social sciences			.034**	.034**	.002	.007	.012
Major: 1 = arts and humanities			.015	.016	−.002	.000	−.001
Major: 1 = physical sciences			−.025*	−.025*	−.018	−.018	−.019*
Major: 1 = undecided			−.033**	−.033**	−.019*	−.017	−.012
Class year			.131***	.131***	.024*	.012	.007
Block 4: institutional characteristics							
Size: 2 = medium, 3 = large				−.002	.009	.015	.013
Control: 1 = public, 2 = private				−.011	−.027*	−.029*	−.026*

Table 4.26 (continued)

Predictor	Block 1 β	Block 2 β	Block 3 β	Block 4 β	Block 5 β	Block 6 β	Block 7 β
Block 5: college experiences							
Sociocultural conversations					.203***	.188***	.154***
Residence on/off campus: 1 = on campus					.024*	.024*	.015
Leadership activities					.012	.001	−.006
Community service: 1 = yes					.043***	.046***	.044***
Working off campus: 1 = yes					.039***	.033**	.031**
Work on campus: 1 = yes					.011	.000	−.001
Active organization involvement on campus					.060***	.057***	.051***
Organization positional leadership on campus					.011	.010	.002
Active organization involvement off campus					.032**	.026*	.019
Organization positional leadership off campus					.019	.018	.015
Social change behaviors					.180***	.167***	.146***
Block 6: mentoring experiences							
Faculty mentor frequency						.067***	.029**
Staff mentor frequency						.037***	.020
Employer mentor frequency						.027**	.015
Community member mentor frequency						.021*	.016
Parent mentor frequency						.023*	.022*
Student mentor frequency						.018	−.007
Block 7: most significant mentor							
Significant mentor staff: 1 = yes							.014
Significant mentor employer: 1 = yes							−.009
Significant mentor student: 1 = yes							−.003
Significant mentor gender: 1 = male							.002
Significant mentor race: 1 = African American/Black							−.013
Significant mentor race: 1 = Asian American/Asian							−.010
Significant mentor race: 1 = Latino/Hispanic							−.012
Significant mentor race: 1 = unsure							−.008
Mentoring for leadership empowerment							.035**

Table 4.26 (continued)

Predictor	Block 1 β	Block 2 β	Block 3 β	Block 4 β	Block 5 β	Block 6 β	Block 7 β
Mentoring for personal development							.198***
R^2	.011	.304	.332	.332	.442	.452	.489
F	13.308***	266.552***	158.139***	145.506***	160.178***	142.990***	134.022***
ΔR^2	.011	.293	.028	.000	.109	.010	.037
ΔF	13.308***	514.201***	28.046***	.484	129.518***	22.702***	53.273***

*$p < .05$. **$p < .01$. ***$p < .001$.

Block 1: Background/demographics. Results of the multiple regression for baccalaureate institutions found in block 1 (background/demographics) that race was a significant predictor of the dependent variable. Being White/Caucasian ($\beta = -.031$, $p < .05$), African American/Black ($\beta = .030$, $p < .05$), or Asian American/Asian ($\beta = -.079$, $p < .001$) were statistically significant predictors, as was being male ($\beta = -.057$, $p < .001$) and being an international student ($\beta = -.037$, $p < .05$). These predictors of socially responsible leadership outcomes accounted for 1.1% of the variance of the model (Table 4.26).

Block 2: High school experiences/leadership. The second model included not only the background/demographics (block 1) but also high school experiences and precollege leadership measures (block 2). Being White/Caucasian and African American/Black in block 1 no longer remained significant, but being Asian American/Asian ($\beta = -.061$, $p < .001$) remained significant, as did being male ($\beta = -.039$, $p < .001$) and being an international student ($\beta = -.036$, $p < .01$).

In block 2 of the model, several statistically significant positive predictors of the dependent variable emerged, including involvement in community organizations ($\beta = .101$, $p < .001$), precollege leadership training ($\beta = .047$, $p < .001$), the omnibus SRLS pretest ($\beta = .368$, $p < .001$), the leadership efficacy pretest ($\beta = .105$, $p < .001$), and the cognitive skills pretest ($\beta = .111$, $p < .001$). In combination, blocks 1 and 2 (Table 4.26) accounted for 30.4% of the variance in the dependent variable. The change in R^2 from model 1 to model 2 was 29.3%.

Block 3: Academic background. Model 3 included background/demographics (block 1), high school experiences and precollege leadership measures (block 2), as well as academic background (block 3). Being Asian American/Asian ($\beta = -.066$, $p < .001$)

remained significant, and being Latino/Hispanic emerged as a statistically significant predictor ($\beta = .026$, $p < .05$). Being male ($\beta = -.026$, $p < .05$) and being an international student ($\beta = -.035$, $p < .01$) remained statistically significant.

In block 2 of the model, all five of the positive predictors of the dependent variable continued to be statistically significant. This included involvement in community organizations ($\beta = .101$, $p < .001$), precollege leadership training ($\beta = .049$, $p < .001$), the omnibus SRLS pretest ($\beta = .378$, $p < .001$), the leadership efficacy pretest ($\beta = .111$, $p < .001$), and the cognitive skills pretest ($\beta = .092$, $p < .001$).

Block 3 contained academic background variables. Three variables emerged as statistically significant positive predictors, including GPA ($\beta = .061$, $p < .001$), majoring in the social sciences, ($\beta = .034$, $p < .01$), and class year ($\beta = .131$, $p < .001$). Two variables in this block emerged as statistically significant negative predictors of the dependent variable: majoring in the physical sciences ($\beta = -.025$, $p < .05$) and being an undecided major ($\beta = -.033$, $p < .001$). These three blocks together (Table 4.26) accounted for 33.2% of the variance in socially responsible leadership outcomes, a change in R^2 of 2.8%.

Block 4: Institutional characteristics. Institutional characteristics were included in block 4. In block 1 of this model, the four demographic predictors remained significant. These included being Asian American/Asian ($\beta = -.066$, $p < .001$), being Latino/Hispanic ($\beta = .025$, $p < .05$), being male ($\beta = -.025$, $p < .05$), and being an international student ($\beta = -.034$, $p < .01$).

The same variables within block 2 of this model remained statistically significant positive predictors. These included involvement in community organizations ($\beta = .101$, $p < .001$), precollege leadership training ($\beta = .049$, $p < .001$), the omnibus SRLS pretest ($\beta =$

.378, $p < .001$), the leadership efficacy pretest ($\beta = .111$, $p < .001$), and the cognitive skills pretest ($\beta = .092$, $p < .001$).

Block 3 variables also remained stable in terms of predicting the outcome variable. The GPA ($\beta = .061$, $p < .001$), majoring in the social sciences ($\beta = .034$, $p < .01$), and class year ($\beta = .131$, $p < .001$) remained positive predictors. Majoring in the physical sciences ($\beta = -.025$, $p < .05$) and being an undecided major ($\beta = -.033$, $p < .001$) remained negative predictors.

The additional block in this model, block 4, contained institutional characteristics of size and control, neither of which emerged as a significant predictor of socially responsible leadership outcomes. The change in R^2 was 0, and therefore, this model (Table 4.26) also accounted for 33.2% of the variance in socially responsible leadership outcomes.

Block 5: College experiences. The fifth model contained additional variables from block 5 related to college experiences. Within this model, the same background/demographic variables remained statistically significant, but with gender having more statistical significance. Being Asian American/Asian ($\beta = -.056$, $p < .001$), being male ($\beta = -.027$, $p < .01$), and being an international student ($\beta = -.043$, $p < .001$) remained negative predictors, while being Latino/Hispanic ($\beta = .023$, $p < .05$) remained a positive predictor.

Within block 2, involvement in community organizations and involvement in precollege leadership training no longer remained statistically significant. Involvement in high school clubs and sports emerged as a statistically significant negative predictor ($\beta = -.045$, $p < .001$), while the omnibus SRLS pretest ($\beta = .380$, $p < .001$), the leadership efficacy

pretest ($\beta = .093$, $p < .001$), and the cognitive skills pretest ($\beta = .066$, $p < .001$) variables remained statistically significant positive predictors.

Within block 3, GPA ($\beta = .032$, $p < .01$) and class year ($\beta = .024$, $p < .05$) remained statistically significant positive predictors, while being a transfer student ($\beta = .025$, $p < .01$) and being an education major ($\beta = .028$, $p < .01$) emerged as positive predictors of socially responsible leadership. Majoring in social sciences or physical sciences were no longer statistically significant predictors. Being an undecided major ($\beta = -.019$, $p < .05$) remained a negative predictor.

Institutional size remained statistically insignificant, but being a private institution emerged as a statistically significant negative predictor of the dependent variable ($\beta = -.027$, $p < .05$).

Within block 5, a number of variables emerged as statistically significant positive predictors of socially responsible leadership outcomes. These included sociocultural conversations ($\beta = .203$, $p < .001$), living on campus ($\beta = .024$, $p < .05$), performing community service ($\beta = .043$, $p < .001$), working off campus ($\beta = .039$, $p < .001$), being an active member of an on-campus organization ($\beta = .060$, $p < .001$), being an active member of an off-campus organization ($\beta = .032$, $p < .01$), and engaging in social change behaviors ($\beta = .180$, $p < .001$). This model (Table 4.26) explained 44.2% of the variance within the dependent variable, an R^2 change of 10.9%.

Block 6: Mentoring experiences. Model 6 included the previous 5 blocks and the addition of block 6, which related to student mentoring experiences by various individuals. Within this model, the same background/demographic variables remained statistically significant. Being Asian American/Asian ($\beta = -.054$, $p < .001$), being male ($\beta = -.020$, $p <$

.05), and being an international student ($\beta = -.042$, $p < .001$) remained negative predictors, while being Latino/Hispanic ($\beta = .024$, $p < .05$) remained a positive predictor.

All of the same variables within block 2 remained statistically significant. Involvement in high school clubs and sports remained a statistically significant negative predictor ($\beta = -.052$, $p < .001$), while the omnibus SRLS pretest ($\beta = .376$, $p < .001$), the leadership efficacy pretest ($\beta = .093$, $p < .001$), and the cognitive skills pretest ($\beta = .068$, $p < .001$) variables remained statistically significant positive predictors.

Within block 3, only three variables remained statistically significant, all positive predictors of socially responsible leadership. These included transfer student status ($\beta = .030$, $p < .01$), GPA ($\beta = .030$, $p < .01$), and majoring in education ($\beta = .026$, $p < .05$). Being an undecided major and class year no longer remained statistically significant.

In block 4, being a private institution remained a negative predictor at a statistically significant level ($\beta = -.029$, $p < .05$).

Block 5 contained the same statistically significant positive predictors. These included sociocultural conversations ($\beta = .188$, $p < .001$), living on campus ($\beta = .024$, $p < .05$), performing community service ($\beta = .046$, $p < .001$), working off campus ($\beta = .033$, $p < .01$), being an active member of an on-campus organization ($\beta = .057$, $p < .001$), being an active member of an off-campus organization ($\beta = .026$, $p < .05$), and engaging in social change behaviors ($\beta = .167$, $p < .001$).

Mentoring frequencies contained in block 6 provided numerous positive predictors of socially responsible leadership that were significant. These included faculty mentor frequency ($\beta = .067$, $p < .001$), staff mentor frequency ($\beta = .037$, $p < .001$), employer mentor frequency ($\beta = .027$, $p < .01$), community member mentor frequency ($\beta = .021$, $p < .05$), and

parent mentor frequency ($\beta = .023$, $p < .05$). Student mentor frequency was the only variable within this block that was not statistically significant. Model 6 (Table 4.26) explained 45.2% of variance within the dependent variable, a change in R^2 of 1%.

Block 7: Most significant mentor. Model 7, the final model, contained all other blocks plus block 7, which contained demographic and behavioral information on a students' most significant mentor. Within this model, being Asian American/Asian ($\beta = -.048$, $p < .001$) or being an international student ($\beta = -.037$, $p < .001$) remained negative predictors, while no other variables remained significant.

All of the same variables within block 2 remained statistically significant. Involvement in high school clubs and sports remained a statistically significant negative predictor ($\beta = -.051$, $p < .001$), while the omnibus SRLS pretest ($\beta = .357$, $p < .001$), the leadership efficacy pretest ($\beta = .079$, $p < .001$), and the cognitive skills pretest ($\beta = .071$, $p < .001$) variables remained statistically significant positive predictors.

In block 3, transfer student status ($\beta = .030$, $p < .01$) and GPA ($\beta = .024$, $p < .01$) remained statistically significant positive predictors. Being an education major no longer remained significant, but majoring in physical sciences reemerged as a statistically significant negative predictor of the dependent variable ($\beta = -.019$, $p < .05$).

In block 4, being a private institution remained a negative predictor at a statistically significant level ($\beta = -.026$, $p < .05$).

Block 5 contained a number of statistically significant positive predictors, but on-campus residence and active member off campus frequency no longer remained significant. Statistically significant variables included sociocultural conversations ($\beta = .154$, $p < .001$), performing community service ($\beta = .044$, $p < .001$), working off campus ($\beta = .031$, $p < .01$),

being an active member of an on-campus organization ($\beta = .051$, $p < .001$), and engaging in social change behaviors ($\beta = .146$, $p < .001$).

Only two mentoring frequencies remained significant in block 6 and included faculty mentor frequency ($\beta = .029$, $p < .01$) and parent mentor frequency ($\beta = .022$, $p < .05$). Within the final block, block 7, only two variables emerged as significant, the composite variables of mentoring for leadership empowerment ($\beta = .035$, $p < .01$) and mentoring for personal development ($\beta = .198$, $p < .001$). Both were positive predictors of socially responsible leadership outcomes. Finally, model 7 (Table 4.26) explained 48.9% of variance within the dependent variable, a change in R^2 of 3.7%. The final adjusted R^2 for baccalaureate institutions was 48.6%, accounting for this percentage of the variance in the dependent variable.

Master's institutions

The data set was filtered to include only students who had attended master's institutions. After filtering, a sequential, hierarchical regression analysis was completed with these cases. Cases were excluded listwise, and the resulting sample contained 13,618 ($n = 13,618$) cases. Relevant independent variables were entered in seven blocks. Block 1 contained background/demographic characteristics, block 2 contained high school experiences and quasi-pretests of leadership, block 3 contained academic background characteristics, block 4 contained institutional characteristics, block 5 contained college experiences, block 6 contained mentoring experiences, and block 7 contained attributes of a student's most significant mentor. Results of this regression can be found in Table 4.27.

Table 4.27

Sequential Hierarchical Regression Analysis of Master's Institutions Predicting Socially Responsible Leadership

Predictor	Block 1 β	Block 2 β	Block 3 β	Block 4 β	Block 5 β	Block 6 β	Block 7 β
Block 1: background/demographics							
Race: 1 = White/Caucasian	.016	.015	.003	.003	.017*	.017*	.016*
Race: 1 = African American/Black	.065***	.023*	.026**	.026**	.014	.014	.016
Race: 1 = Asian American/Asian	−.086***	−.049***	−.049***	−.050***	−.045***	−.043***	−.034***
Race: 1 = Latino/Hispanic	.015	.002	.005	.005	.001	.001	−.008
Gender: 1 = male	−.048***	−.043***	−.027***	−.027***	−.035***	−.032***	−.025***
U.S. generational status: 1 = international	−.006	−.002**	−.030***	−.030***	−.030***	−.030***	−.023**
Block 2: high school experiences/leadership pretests							
Involvement in high school clubs and sports		−.006	.003	.003	−.026**	−.028***	−.027***
Involvement in community organizations		.075***	.080***	.080***	−.027**	−.026**	−.021*
Precollege leadership training		.027**	.031***	.031***	.006	.001	−.004
Omnibus SRLS pretest		.403***	.408***	.408***	.397***	.391***	.364***
Leadership efficacy pretest		.112***	.117***	.117***	.095***	.093***	.083***
Cognitive skills pretest		.115***	.092***	.092***	.069***	.073***	.071***
Block 3: academic background							
Transfer student status: 1 = started elsewhere			.020**	.020**	.053***	.057***	.055***
GPA			.077***	.077***	.049***	.047***	.042***
Major: 1 = biological sciences			−.004	−.004	−.005	−.006	.001
major: 1 = business			−.012	−.012	.005	.009	.009
Major: 1 = education			−.005	−.004	.009	.006	.000
Major: 1 = engineering			−.005	−.005	.005	.003	.005
Major: 1 = social sciences			.027**	.028**	.003	.005	.006
Major: 1 = arts and humanities			.019*	.020*	.001	−.002	−.005
Major: 1 = physical sciences			−.035***	−.035***	−.024***	−.024***	−.024***
Major: 1 = undecided			−.016*	−.016*	−.010	−.009	−.006
Class year			.120***	.120***	.024**	.017*	.008

Table 4.27 (continued)

Predictor	Block 1 β	Block 2 β	Block 3 β	Block 4 β	Block 5 β	Block 6 β	Block 7 β
Block 4: institutional characteristics							
Size: 2 = medium, 3 = large				.003	.006	.012	.009
Control: 1 = public, 2 = private				.004	−.022**	−.025**	−.024**
Block 5: college experiences							
Sociocultural conversations					.198***	.184***	.145***
Residence on/off campus: 1 = on campus					.020*	.016*	.014
Leadership activities					.008	−.003	−.009
Community service: 1 = yes					.044***	.044***	.039***
Working off campus: 1 = yes					.016*	.012	.013
Work on campus: 1 = yes					.007	.000	.001
Active member frequency on campus					.054***	.049***	.035***
Positional leadership frequency on campus					−.001	−.001	.000
Active member frequency off campus					.045***	.039***	.033***
Positional leadership frequency off campus					−.004	−.002	.000
Social change behaviors					.166***	.149***	.124***
Block 6: mentoring experiences							
Faculty mentor frequency						.070***	.031***
Staff mentor frequency						.045***	.025**
Employer mentor frequency						.020**	.000
Community member mentor frequency						.023**	.013
Parent mentor frequency						.005	.000
Student mentor frequency						.025***	.008
Block 7: most significant mentor							
Significant mentor staff: 1 = yes							.019*
Significant mentor employer: 1 = yes							.001
Significant mentor student: 1 = yes							−.004
Significant mentor gender: 1 = male							−.005
Significant mentor race: 1 = African American/Black							−.015*

Table 4.27 (continued)

Predictor	Block 1 β	Block 2 β	Block 3 β	Block 4 β	Block 5 β	Block 6 β	Block 7 β
Significant mentor race: 1 = Asian American/Asian							−.016*
Significant mentor race: 1 = Latino/Hispanic							.003
Significant mentor race: 1 = unsure							−.009
Mentoring for leadership empowerment							.038***
Mentoring for personal development							.206***
R^2	.008	.327	.354	.354	.447	.457	.498
F	19.329***	550.755***	324.333***	298.360***	305.108***	272.536***	258.322***
ΔR^2	.008	.319	.027	.000	.093	.010	.040
ΔF	19.329***	1,073.046***	52.371***	.146	207.255***	43.076***	108.215***

$*p < .05.$ $**p < .01.$ $***p < .001.$

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Block 1: Background/demographics. Results of the multiple regression for master's institutions found in block 1 (background/demographics) that race was a significant predictor of the dependent variable. Being African American/Black (β = .065, p < .001) was a positive predictor, while being Asian American/Asian (β = −.086, p < .001) was a negative predictor. In addition, being male (β = −.048, p < .001) was a negative predictor of socially responsible leadership. These predictors of socially responsible leadership outcomes accounted for 0.8% of the variance of the model (Table 4.27).

Block 2: High school experiences/leadership. The second model included not only the background/demographics (block 1) but also high school experiences and precollege leadership measures (block 2). Being African American/Black remained significant, but at a lower significance level (β = .023, p < .05). Being Asian American/Asian (β = −.049, p < .001) remained a statistically significant negative predictor as did being male (β = −.043, p < .001). In addition, being an international student (β = −.002, p < .01) emerged as a statistically significant negative predictor.

In block 2 of the model, several statistically significant positive predictors of the dependent variable emerged, including involvement in community organizations (β = .075, p < .001), precollege leadership training (β = .027, p < .01), the omnibus SRLS pretest (β = .403, p < .001), the leadership efficacy pretest (β = .112, p < .001), and the cognitive skills pretest (β = .115, p < .001). In combination, blocks 1 and 2 (Table 4.27) accounted for 32.7% of the variance in the dependent variable. The change in R^2 from model 1 to model 2 was 31.9%.

Block 3: Academic background. Model 3 included background/demographics (block 1), high school experiences and precollege leadership measures (block 2), as well as

academic background (block 3). All four of the previous significant variables within block 1 remained significant. Being African American/Black was still a statistically significant positive predictor ($\beta = .026$, $p < .01$). Being Asian American/Asian ($\beta = -.049$, $p < .001$), male ($\beta = -.027$, $p < .05$) and being an international student ($\beta = -.030$, $p < .001$) all remained statistically significant negative predictors.

In block 2 of the model, all five of the positive predictors of the dependent variable continued to be statistically significant. This included involvement in community organizations ($\beta = .080$, $p < .001$), precollege leadership training ($\beta = .031$, $p < .001$), the omnibus SRLS pretest ($\beta = .408$, $p < .001$), the leadership efficacy pretest ($\beta = .117$, $p < .001$), and the cognitive skills pretest ($\beta = .092$, $p < .001$).

Block 3 contained academic background variables. Four variables emerged as statistically significant positive predictors, including being a transfer student ($\beta = .020$, $p < .001$), GPA ($\beta = .077$, $p < .001$), majoring in the social sciences, ($\beta = .027$, $p < .01$) majoring in the arts and humanities ($\beta = .019$, $p < .01$), and class year ($\beta = .120$, $p < .001$). Two variables in this block emerged as statistically significant negative predictors of the dependent variable: majoring in the physical sciences ($\beta = -.035$, $p < .001$) and being an undecided major ($\beta = -.016$, $p < .05$). These three blocks together (Table 4.27) accounted for 35.4% of the variance in socially responsible leadership outcomes, a change in R^2 of 2.7%.

Block 4: Institutional characteristics. Institutional characteristics were included in block 4. In block 1 of this model, the same four demographic predictors remained significant. Negative predictors included being Asian American/Asian ($\beta = -.050$, $p < .001$), being male ($\beta = -.027$, $p < .001$), and being an international student ($\beta = -.030$, $p < .001$). The one positive predictor remained being African American/Black ($\beta = .026$, $p < .01$).

The same variables within block 2 of this model remained statistically significant positive predictors. These included involvement in community organizations ($\beta = .080$, $p < .001$), precollege leadership training ($\beta = .031$, $p < .001$), the omnibus SRLS pretest ($\beta = .408$, $p < .001$), the leadership efficacy pretest ($\beta = .117$, $p < .001$), and the cognitive skills pretest ($\beta = .092$, $p < .001$).

Block 3 variables also remained stable in terms of predicting the outcome variable. Positive predictors included being a transfer student ($\beta = .020$, $p < .01$), GPA ($\beta = .077$, $p < .001$), majoring in the social sciences ($\beta = .028$, $p < .01$), majoring in the arts and humanities ($\beta = .020$, $p < .05$), and class year ($\beta = .120$, $p < .001$). The two variables in this block that remained statistically significant negative predictors of the dependent variable were majoring in the physical sciences ($\beta = -.035$, $p < .001$) and being an undecided major ($\beta = -.016$, $p < .05$).

The additional block in this model, block 4, contained institutional characteristics of size and control, neither of which emerged as a significant predictor of socially responsible leadership outcomes. The change in R^2 was 0, and therefore, this model (Table 4.27) also accounted for 35.4% of the variance in socially responsible leadership outcomes.

Block 5: College experiences. The fifth model contained additional variables from block 5 related to college experiences. Within this model, being White/Caucasian ($\beta = .017$, $p < .05$) emerged as a statistically significant positive predictor, while being African American/Black became insignificant. In addition, being Asian American/Asian ($\beta = -.045$, $p < .001$), being male ($\beta = -.035$, $p < .001$), and being an international student ($\beta = -.030$, $p < .001$) remained negative predictors within this block.

Within block 2, involvement in precollege leadership training no longer remained statistically significant. Involvement in high school clubs and sports emerged as a statistically significant negative predictor ($\beta = -.026$, $p < .01$), and involvement in community organizations switched from being a positive to negative predictor ($\beta = -.027$, $p < .01$). The omnibus SRLS pretest ($\beta = .397$, $p < .001$), the leadership efficacy pretest ($\beta = .095$, $p < .001$), and the cognitive skills pretest ($\beta = .069$, $p < .001$) variables remained statistically significant positive predictors.

Within block 3, being a transfer student ($\beta = .053$, $p < .001$), GPA ($\beta = .049$, $p < .001$), and class year ($\beta = .024$, $p < .01$) remained positive predictors. Majoring in physical sciences ($\beta = -.024$, $p < .001$) remained a negative predictor, and all other variables became insignificant.

In block 4, institutional size remained statistically insignificant, but being a private institution emerged as a statistically significant negative predictor of the dependent variable ($\beta = -.022$, $p < .01$).

Within block 5, a number of variables emerged as statistically significant positive predictors of socially responsible leadership outcomes. These included sociocultural conversations ($\beta = .198$, $p < .001$), living on campus ($\beta = .020$, $p < .05$), performing community service ($\beta = .044$, $p < .001$), working off campus ($\beta = .016$, $p < .05$), being an active member of an on-campus organization ($\beta = .054$, $p < .001$), being an active member of an off-campus organization ($\beta = .045$, $p < .001$), and engaging in social change behaviors ($\beta = .166$, $p < .001$). This model (Table 4.27) explained 44.7% of the variance within the dependent variable, an R^2 change of 9.3%.

Block 6: Mentoring experiences. Model 6 included the previous five blocks with the addition of block 6, which related to student mentoring experiences by various individuals. Within this model, the same background/demographic variables remained statistically significant. Being White/Caucasian ($\beta = .017$, $p < .05$) was a statistically significant positive predictor. Being Asian American/Asian ($\beta = -.043$, $p < .001$), being male ($\beta = -.032$, $p < .001$), and being an international student ($\beta = -.030$, $p < .001$) remained negative predictors within this block.

All of the same variables within block 2 remained statistically significant. Involvement in high school clubs and sports remained a statistically significant negative predictor ($\beta = -.028$, $p < .001$), as did involvement in community organizations ($\beta = -.026$, $p < .01$). The omnibus SRLS pretest ($\beta = .391$, $p < .001$), leadership efficacy pretest ($\beta = .093$, $p < .001$), and the cognitive skills pretest ($\beta = .073$, $p < .001$) variables remained statistically significant positive predictors.

Within block 3, transfer student status ($\beta = .057$, $p < .001$), GPA ($\beta = .047$, $p < .001$), and class year ($\beta = .017$, $p < .05$) remained statistically significant positive predictors of the dependent variable. Being a physical sciences major ($\beta = -.024$, $p < .001$) remained a negative predictor.

In block 4, being a private institution remained a negative predictor at a statistically significant level ($\beta = -.025$, $p < .001$).

Block 5 contained the same statistically significant positive predictors, except that working off campus was no longer significant. Remaining significant variables included sociocultural conversations ($\beta = .184$, $p < .001$), living on campus ($\beta = .016$, $p < .05$), performing community service ($\beta = .044$, $p < .001$), being an active member of an on-campus

organization (β = .049, p < .001), being an active member of an off-campus organization (β = .039, p < .001), and engaging in social change behaviors (β = .149, p < .001).

Mentoring frequencies contained in block 6 provided numerous positive predictors of socially responsible leadership that were significant. These included faculty mentor frequency (β = .070, p < .001), staff mentor frequency (β = .045, p < .001), employer mentor frequency (β = .020, p < .01), community member mentor frequency (β = .023, p < .05), and student mentor frequency (β = .025, p < .001). Parent mentor frequency was the only variable within this block that was not statistically significant. Model 6 (Table 4.27) explained 45.7% of variance within the dependent variable, a change in R^2 of 1%.

Block 7: Most significant mentor. Model 7, the final model, contained all other blocks plus block 7, which contained demographic and behavioral information on a students' most significant mentor. Being White/Caucasian (β = .016, p < .05) was a statistically significant positive predictor. Being Asian American/Asian (β = −.034, p < .001), being male (β = −.025, p < .001), and being an international student (β = −.023, p < .001) remained negative predictors within this block.

All of the same variables within block 2 remained statistically significant. Involvement in high school clubs and sports remained a statistically significant negative predictor (β = −.027, p < .001), as did involvement in community organizations (β = −.021, p < .05) while the omnibus SRLS pretest (β = .364, p < .001), the leadership efficacy pretest (β = .083, p < .001), and the cognitive skills pretest (β = .071, p < .001) variables remained statistically significant positive predictors.

In block 3, transfer student status (β = .055, p < .001) and GPA (β = .042, p < .001) remained statistically significant positive predictors. Class year no longer remained

significant, but majoring in physical sciences remained a statistically significant negative predictor of the dependent variable ($\beta = -.024$, $p < .001$).

In block 4, being a private institution remained a negative predictor at a statistically significant level ($\beta = -.024$, $p < .01$).

Block 5 contained a number of statistically significant positive predictors, but on-campus residence no longer remained significant. Statistically significant variables included sociocultural conversations ($\beta = .145$, $p < .001$), performing community service ($\beta = .039$, $p < .001$), being an active member of an on-campus organization ($\beta = .035$, $p < .001$), being an active member in an off-campus organization ($\beta = .033$, $p < .001$), and engaging in social change behaviors ($\beta = .124$, $p < .001$).

Only two mentoring frequencies remained significant in block 6, including faculty mentor frequency ($\beta = .031$, $p < .001$) and staff mentor frequency ($\beta = .025$, $p < .01$).

Within the final block, block 7, five variables emerged as significant. Negative predictors included significant mentor being African American/Black ($\beta = -.015$, $p < .05$) and significant mentor being Asian American/Asian ($\beta = -.016$, $p < .05$). As compared to having a faculty most significant mentor, having a staff member most significant mentor was a positive predictor ($\beta = .019$, $p < .05$). Additional positive predictors included the composite variables of mentoring for leadership empowerment ($\beta = .038$, $p < .001$) and mentoring for personal development ($\beta = .206$, $p < .001$). Finally, model 7 (Table 4.27) explained 49.8% of variance within the dependent variable, a change in R^2 of 4%. The final adjusted R^2 for master's institutions was 49.6%.

Doctoral/Research institutions

The data set was filtered to include only students who had attended doctoral/research institutions. After filtering, a sequential, hierarchical regression analysis was completed with these cases. Cases were excluded listwise, and the resulting sample contained 3,374 ($n = 3,374$) cases. Relevant independent variables were entered in seven blocks. Block 1 contained background/demographic characteristics, block 2 contained high school experiences and quasi-pretests of leadership, block 3 contained academic background characteristics, block 4 contained institutional characteristics, block 5 contained college experiences, block 6 contained mentoring experiences and block 7 contained attributes of a student's most significant mentor. Results of the regression analysis can be found in Table 4.28.

Table 4.28

Sequential Hierarchical Regression Analysis of Doctoral/Research Institutions Predicting Socially Responsible Leadership

Predictor	Block 1 β	Block 2 β	Block 3 β	Block 4 β	Block 5 β	Block 6 β	Block 7 β
Block 1: background/demographics							
Race: 1 = White/Caucasian	.015	.032*	.014	.015	.018	.016	.027
Race: 1 = African American/Black	.047*	.024	.030	.032*	.026	.027	.023
Race: 1 = Asian American/Asian	−.079***	−.037*	−.035*	−.037*	−.024	−.027	−.019
Race: 1 = Latino/Hispanic	.035	.029	.029	.026	.023	.025	.014
Gender: 1 = male	−.054**	−.022	−.004	−.003	−.020	−.017	−.023
U.S. generational status: 1 = international	−.041*	−.023	−.036*	−.036*	−.041**	−.042**	−.041**
Block 2: high school experiences/leadership pretests							
Involvement in high school clubs and sports		.007	.014	.014	−.036*	−.038*	−.038*
Involvement in community organizations		.059**	.066***	.065***	−.034	−.037*	−.032
Precollege leadership training		.041*	.043*	.043*	.009	.002	−.001
Omnibus SRLS pretest		.399***	.410***	.411***	.408***	.404***	.375***
Leadership efficacy pretest		.119***	.118***	.118***	.110***	.108***	.096***
Cognitive skills pretest		.111***	.094***	.093***	.066***	.067***	.063***
Block 3: academic background							
Transfer student status: 1 = started elsewhere			.020	.021	.041**	.047**	.049***
GPA			.065***	.061***	.038**	.035*	.034*
Major: 1 = biological sciences			−.001	−.001	−.005	−.005	−.001
Major: 1 = business			.011	.009	.008	.010	.009
Major: 1 = education			.003	.004	.001	−.006	−.017
Major: 1 = engineering			−.017	−.013	−.009	−.009	.000
Major: 1 = social sciences			.035*	.035*	−.001	.000	.006
Major: 1 = arts and humanities			.024	.024	.006	.004	.007
Major: 1 = physical sciences			−.026	−.025	−.024	−.024	−.018
Major: 1 = undecided			−.007	−.008	−.001	−.004	.002

Table 4.28 (continued)

Predictor	Block 1 β	Block 2 β	Block 3 β	Block 4 β	Block 5 β	Block 6 β	Block 7 β
Class year			.112	.111***	.006	−.008	−.021
Block 4: institutional characteristics							
Size: 2 = medium, 3 = large				.015	.003	.009	.009
Control: 1 = public, 2 = private				.027	.002	.002	.006
Block 5: college experiences							
Sociocultural conversations					.181***	.168***	.145***
Residence on/off campus: 1 = on Campus					.035*	.034*	.034*
Leadership activities					.042**	.029	.025
Community service: 1 = yes					.054***	.054***	.042**
Working off campus: 1 = yes					.033*	.028	.020
Work on campus: 1=yes					.033*	.024	.018
Active member frequency on campus					.023	.018	.012
Positional leadership frequency on campus					.024	.027	.023
Active member frequency off campus					.056**	.049**	.042*
Positional leadership frequency off campus					−.016	−.015	−.013
Social change behaviors					.154***	.141***	.111***
Block 6: mentoring experiences							
Faculty mentor frequency						.069***	.039*
Staff mentor frequency						.021	−.005
Employer mentor frequency						.034*	.002
Community member mentor frequency						.028	.019
Parent mentor frequency						.017	.011
Student mentor frequency						.047**	.030
Block 7: most significant mentor							
Significant mentor staff: 1 = yes							.030*

Table 4.28 (continued)

Predictor	Block 1 β	Block 2 β	Block 3 β	Block 4 β	Block 5 β	Block 6 β	Block 7 β
Significant mentor employer: 1 = yes							.018
Significant mentor student: 1 = yes							−.004
Significant mentor gender: 1 = male							.005
Significant mentor race: 1 = African American/Black							.018
Significant mentor race: 1 = Asian American/Asian							−.002
Significant mentor race: 1 = Latino/Hispanic							.014
Significant mentor race: 1 = unsure							.012
Mentoring for leadership empowerment							.055**
Mentoring for personal development							.195***
R^2	.014	.329	.351	.352	.445	.457	.499
F	8.067***	137.564***	78.929***	72.752***	74.195***	66.625***	63.593***
ΔR^2	.014	.315	.022	.001	.093	.012	.042
ΔF	8.067***	263.291***	10.364***	1.469	50.553***	12.224***	28.095***

$*p < .05.$ $**p < .01.$ $***p < .001.$

Block 1: Background/demographics. Results of the multiple regression for doctoral/research institutions found in block 1 (background/demographics) that race was a significant predictor of the dependent variables. Being African American/Black ($\beta = .047$, $p < .05$) was a positive predictor, whereas being Asian American/Asian ($\beta = -.079$, $p < .001$) was a statistically significant negative predictor. In addition, being male ($\beta = -.054$, $p < .01$) and being an international student ($\beta = -.041$, $p < .05$) were statistically significant negative predictors of socially responsible leadership. These predictors of socially responsible leadership outcomes accounted for 1.4% of the variance of the model (Table 4.28).

Block 2: High school experiences/leadership. The second model included not only the background/demographics (block 1) but also high school experiences and precollege leadership measures (block 2). Being White/Caucasian emerged as a statistically significant positive predictor ($\beta = .032$, $p < .05$), while being African American/Black was no longer significant. Being Asian American/Asian ($\beta = -.037$, $p < .05$) remained significant, but being male or being an international student were no longer significant.

In block 2 of the model, several statistically significant, positive predictors of the dependent variable emerged, including involvement in community organizations ($\beta = .059$, $p < .01$), precollege leadership training ($\beta = .041$, $p < .05$), the omnibus SRLS pretest ($\beta = .399$, $p < .001$), the leadership efficacy pretest ($\beta = .119$, $p < .001$), and the cognitive skills pretest ($\beta = .111$, $p < .001$). In combination, blocks 1 and 2 (Table 4.28) accounted for 32.9% of the variance in the dependent variable. The change in R^2 from model 1 to model 2 was 31.5%.

Block 3: Academic background. Model 3 included background/demographics (block 1), high school experiences and precollege leadership measures (block 2), as well as academic background (block 3). Being White/Caucasian no longer remained a significant

predictor, but being Asian American/Asian ($\beta = -.035$, $p < .05$) remained significant, and being an international student ($\beta = -.036$, $p < .05$) reemerged as a statistically significant negative predictor of the outcome variable.

In block 2 of the model, all five of the positive predictors of the dependent variable continued to be statistically significant. This included involvement in community organizations ($\beta = .066$, $p < .001$), precollege leadership training ($\beta = .043$, $p < .05$), the omnibus SRLS pretest ($\beta = .410$, $p < .001$), the leadership efficacy pretest ($\beta = .118$, $p < .001$), and the cognitive skills pretest ($\beta = .094$, $p < .001$).

Block 3 contained academic background variables. Two variables emerged as statistically significant positive predictors. These were GPA ($\beta = .065$, $p < .001$) and majoring in the social sciences ($\beta = .035$, $p < .05$). These three blocks together (Table 4.28) accounted for 35.1% of the variance in socially responsible leadership outcomes, a change in R^2 of 2.2%.

Block 4: Institutional characteristics. Institutional characteristics were included in block 4. In block 1 of this model, three demographic predictors were statistically significant. Being African American/Black reemerged as a statistically significant positive predictor ($\beta = .032$, $p < .05$). Being Asian American/Asian ($\beta = -.037$, $p < .05$) remained a negative predictor, and being an international student ($\beta = -.036$, $p < .05$) was a negative predictor.

The same variables within block 2 of this model remained statistically significant positive predictors. These included involvement in community organizations ($\beta = .065$, $p < .001$), precollege leadership training ($\beta = .043$, $p < .05$), the omnibus SRLS pretest ($\beta = .411$, $p < .001$), the leadership efficacy pretest ($\beta = .118$, $p < .001$), and the cognitive skills pretest ($\beta = .093$, $p < .001$).

In block 3, GPA (β = .061, p < .001) and majoring in the social sciences (β = .035, p < .05) remained positive predictors, and class year (β = .111, p < .001) emerged as a statistically significant positive predictor.

The additional block (Table 4.28) in this model, block 4, contained institutional characteristics of size and control, neither of which emerged as a significant predictor of socially responsible leadership outcomes. The change in R^2 was 0.1%, and the model accounted for 35.2% of the variance in socially responsible leadership outcomes.

Block 5: College experiences. The fifth model contained additional variables from block 5 related to college experiences. Only one variable in block 1 remained significant, and that was being an international student (β = −.041, p < .01), which was a negative predictor.

Within block 2, involvement in high school clubs and sports emerged as a negative predictor (β = −.036, p < .05). Involvement in community organizations and involvement in precollege leadership training no longer remained statistically significant. The omnibus SRLS pretest (β = .408, p < .001), the leadership efficacy pretest (β = .110, p < .001), and the cognitive skills pretest (β = .066, p < .001) variables remained statistically significant positive predictors.

Within block 3, transfer student status (β = .041, p < .01) emerged as a positive predictor, and GPA (β = .038, p < .01) remained a statistically significant positive predictor. Majoring in the social sciences and class year no longer remained statistically significant.

In block 4, institutional size and control both remained statistically insignificant.

Within block 5, a number of variables emerged as statistically significant positive predictors of socially responsible leadership outcomes. These included sociocultural

conversations ($\beta = .181$, $p < .001$), living on campus ($\beta = .035$, $p < .05$), involvement in leadership activities ($\beta = .042$, $p < .01$), performing community service ($\beta = .054$, $p < .001$), working off campus ($\beta = .033$, $p < .05$), being an active member of an on-campus organization ($\beta = .033$, $p < .05$), being an active member of an off-campus organization ($\beta = .056$, $p < .01$), and engaging in social change behaviors ($\beta = .154$, $p < .001$). This model (Table 4.28) explained 44.5% of the variance within the dependent variable, an R^2 change of 9.3%.

Block 6: Mentoring experiences. Model 6 included the previous five blocks, with the addition of block 6, which related to student mentoring experiences by various individuals. In block 1, being an international student ($\beta = -.042$, $p < .01$) remained the only statistically significant predictor, a negative predictor.

Within block 2, all of the same significant variables remained statistically significant. These included involvement in high school clubs and sports ($\beta = -.038$, $p < .05$), the omnibus SRLS pretest ($\beta = .404$, $p < .001$), the leadership efficacy pretest ($\beta = .108$, $p < .001$), and the cognitive skills pretest ($\beta = .067$, $p < .001$). In addition, previous involvement in community service ($\beta = -.037$, $p < .05$) reemerged as a statistically significant negative predictor.

Within block 3, the two positive predictors of transfer student status ($\beta = .047$, $p < .001$) and GPA ($\beta = .035$, $p < .05$) remained statistically significant positive predictors. No additional variables emerged or were dropped.

Again, neither of the institutional variables within block 4 emerged as statistically significant.

Block 5 contained several significant positive predictors, while several predictors from the past model became insignificant. Those still statistically significant included

sociocultural conversations ($\beta = .168$, $p < .001$), living on campus ($\beta = .034$, $p < .05$), performing community service ($\beta = .054$, $p < .001$), being an active member of an off-campus organization ($\beta = .049$, $p < .01$), and engaging in social change behaviors ($\beta = .141$, $p < .001$). Leadership activities, working off campus, and working on campus no longer remained significant.

Mentoring frequencies contained in block 6 provided several positive predictors of socially responsible leadership that were significant. These included faculty mentor frequency ($\beta = .069$, $p < .001$), employer mentor frequency ($\beta = .034$, $p < .05$), and student mentor frequency ($\beta = .047$, $p < .01$). Model 6 (Table 4.28) explained 45.7% of variance within the dependent variable, a change in R^2 of 1.2%.

Block 7: Most significant mentor. Model 7, the final model, contained all other blocks plus block 7, which contained demographic and behavioral information on students' most significant mentors. In block 1 within this model, being an international student ($\beta = -.041$, $p < .01$) remained a statistically significant negative predictor.

In block 2, involvement in high school clubs and sports remained a statistically significant negative predictor ($\beta = -.038$, $p < .05$), but previous involvement in community organizations no longer remained a negative predictor. The omnibus SRLS pretest ($\beta = .375$, $p < .001$), the leadership efficacy pretest ($\beta = .096$, $p < .001$), and the cognitive skills pretest ($\beta = .063$, $p < .001$) variables remained statistically significant positive predictors.

In block 3, transfer student status ($\beta = .049$, $p < .001$) and GPA ($\beta = .034$, $p < .05$) remained statistically significant positive predictors.

In block 4, both variables of institution size and control remained statistically insignificant.

In block 5, the same significant variables remained statistically significant predictors. Statistically significant variables included sociocultural conversations ($\beta = .145$, $p < .001$), living on campus ($\beta = .034$, $p < .05$), community service ($\beta = .042$, $p < .01$), being an active member of an off-campus organization ($\beta = .042$, $p < .05$), and engaging in social change behaviors ($\beta = .111$, $p < .001$).

Only one mentoring frequency remained significant in block 6: faculty mentor frequency ($\beta = .039$, $p < .05$).

Within the final block, block 7, only three variables emerged as significant. The first was the positive predictor of having the significant mentor be a staff member as compared to a faculty member ($\beta = .030$, $p < .05$). In addition, the composite variables of mentoring for leadership empowerment ($\beta = .055$, $p < .01$) and mentoring for personal development ($\beta = .195$, $p < .001$) were statistically significant positive predictors of socially responsible leadership outcomes. Finally, model 7 (Table 4.28) explained 49.9% of variance within the dependent variable, a change in R^2 of 4.2%. The final adjusted R^2 for doctoral/research institutions was 49.1%.

Research (Very High) Institutions

The data set was next filtered to include only students who had attended research (very high) institutions. After filtering, a sequential, hierarchical regression analysis was completed with these cases. Cases were excluded listwise, and the resulting sample contained 13,071 ($n = 13,071$) cases. Relevant independent variables were entered in seven blocks. Block 1 contained background/demographic characteristics, block 2 contained high school experiences and quasi-pretests of leadership, block 3 contained academic background characteristics, block 4 contained institutional characteristics, block 5 contained college

experiences, block 6 contained mentoring experiences, and block 7 contained attributes of a

student's most significant mentor. The results of this regression can be found in Table 4.29.

Table 4.29

Sequential Hierarchical Regression Analysis of Research (very high) Institutions Predicting Socially Responsible Leadership

Predictor	Block 1 β	Block 2 β	Block 3 β	Block 4 β	Block 5 β	Block 6 β	Block 7 β
Block 1: background/demographics							
Race: 1 = White/Caucasian	−.002	.009	.003	.003	.015	.012	.018*
Race: 1 = African American/Black	.036***	.011	.012	.012	.001	.001	−.002
Race: 1 = Asian American/Asian	−.063***	−.041***	−.040***	−.040***	−.030***	−.030***	−.015*
Race: 1 = Latino/Hispanic	.021*	.006	.009	.009	.000	.001	−.006
Gender: 1 = male	−.057***	−.038***	−.025**	−.025**	−.019**	−.016*	−.011
U.S. generational status: 1 = international	.030**	−.029***	−.028***	−.028***	−.030***	−.031***	−.024**
Block 2: high school experiences/leadership pretests							
Involvement in high school clubs and sports		.000	.008	.008	−.027***	−.029***	−.028***
Involvement in community organizations		.056***	.061***	.061***	−.045***	−.045***	−.044***
Precollege leadership training		.038***	.040***	.041***	.019*	.014	.007
Omnibus SRLS pretest		.415***	.422***	.422***	.414***	.408***	.382***
Leadership efficacy pretest		.119***	.119***	.120***	.099***	.098***	.089***
Cognitive skills pretest		.115***	.102***	.101***	.077***	.079***	.074***
Block 3: academic background							
Transfer student status: 1 = started elsewhere			.002	.003	.029***	.030***	.031***
GPA			.045***	.045***	.013	.012	.014*
Major: 1 = biological sciences			.000	.000	−.004	−.002	.003
Major: 1 = business			−.015	−.015	−.004	.001	−.002
Major: 1 = education			.012	.012	.018**	.016*	.010
Major: 1 = engineering			−.014	−.015	.003	.003	.010
Major: 1 = social sciences			.035***	.035***	.007	.012	.015*
Major: 1 = arts and humanities			.016*	.015	.004	.003	.007
Major: 1 = physical sciences			−.005	−.005	−.004	−.002	.001
Major: 1 = undecided			−.019**	−.019**	−.011	−.010	−.008
Class year			.109***	.109***	.016	.009	.005
Block 4: institutional characteristics							
Size: 2 = medium, 3 = large				−.010	−.012	−.013	−.022
Control: 1= public, 2 = private				−.005	−.025*	−.027*	−.029*

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Table 4.29 (continued)

Predictor	Block 1 β	Block 2 β	Block 3 β	Block 4 β	Block 5 β	Block 6 β	Block 7 β
Block 5: college experiences							
Sociocultural conversations					.195***	.183***	.150***
Residence on/off campus: 1 = on campus					.015	.012	.011
Leadership activities					−.001	−.012	−.018*
Community service: 1 = yes					.061***	.060***	.053***
Working off campus: 1 = yes					.036***	.031***	.028***
Work on campus: 1 = yes					.002	−.006	−.006
Active member frequency on campus					.039***	.035***	.033***
Positional leadership frequency on campus					.020*	.019*	.013
Active member frequency off campus					.051***	.041***	.040***
Positional leadership frequency off campus					−.005	−.009	−.010
Social change behaviors					.171***	.158***	.136***
Block 6: mentoring experiences							
Faculty mentor frequency						.050***	.018*
Staff mentor frequency						.023**	.005
Employer mentor frequency						.025**	.003
Community member mentor frequency						.046***	.034***
Parent mentor frequency						.011	.002
Student mentor frequency						.032***	.006
Block 7: most significant mentor							
Significant mentor staff: 1 = yes							.015
Significant mentor employer: 1 = yes							−.005
Significant mentor student: 1 = yes							−.003
Significant mentor gender: 1 = male							−.005
Significant mentor race: 1 = African American/Black							.000
Significant mentor race: 1=Asian American/Asian							−.013
Significant mentor race: 1 = Latino/Hispanic							.005
Significant mentor race: 1 = unsure							−.007
Mentoring for leadership empowerment							.034***
Mentoring for personal development							.197***

Table 4.29 (continued)

Predictor	Block 1 β	Block 2 β	Block 3 β	Block 4 β	Block 5 β	Block 6 β	Block 7 β
R^2	.011	.337	.355	.355	.454	.462	.499
F	23.988***	553.003***	312.117***	287.151***	301.151***	266.907***	249.142***
ΔR^2	.011	.326	.018	.000	.099	.008	.036
ΔF	23.988***	1,070.238***	33.046***	.380	215.132***	33.995***	94.273***

*$p < .05$. **$p < .01$. ***$p < .001$.

Block 1: Background/demographics. Results of the multiple regression for research (very high) institutions found in block 1 (background/demographics) that race was a significant predictor of the dependent variables. Being African American/Black ($\beta = .036$, $p < .001$) or Latino/Hispanic ($\beta = .021$, $p < .05$) were positive predictors, whereas being Asian American/Asian ($\beta = -.063$, $p < .001$) was a statistically significant negative predictor. In addition, being male ($\beta = -.057$, $p < .001$) was a negative predictor, while being an international student ($\beta = .030$, $p < .01$) was a significant positive predictor of socially responsible leadership. These predictors of socially responsible leadership outcomes accounted for 1.1% of the variance of the model (Table 4.29).

Block 2: High school experiences/leadership. The second model included not only the background/demographics (block 1) but also high school experiences and precollege leadership measures (block 2). Being Asian American/Asian remained a statistically significant negative predictor ($\beta = -.041$, $p < .001$), while being African American/Black or Latino/Hispanic were no longer significant. Being male ($\beta = -.038$, $p < .001$) and being an international student ($\beta = -.029$, $p < .001$) remained statistically significant negative predictors of the outcome variable.

In block 2 of the model, several statistically significant positive predictors of the dependent variable emerged, including involvement in community organizations ($\beta = .056$, $p < .001$), precollege leadership training ($\beta = .038$, $p < .001$), the omnibus SRLS pretest ($\beta = .415$, $p < .001$), the leadership efficacy pretest ($\beta = .119$, $p < .001$), and the cognitive skills pretest ($\beta = .115$, $p < .001$). In combination, blocks 1 and 2 (Table 4.29) accounted for 33.7% of the variance in the dependent variable. The change in R^2 from model 1 to model 2 was 32.6%.

Block 3: Academic background. Model 3 included background/demographics (block 1), high school experiences and precollege leadership measures (block 2), as well as academic background (block 3). The same three negative predictors remained significant from model 1 and included being Asian American/Asian ($\beta = -.040$, $p < .001$), male ($\beta = -.025$, $p < .01$), and an international student ($\beta = -.028$, $p < .001$).

In block 2 of the model, all five of the positive predictors of the dependent variable continued to be statistically significant. This included involvement in community organizations ($\beta = .061$, $p < .001$), precollege leadership training ($\beta = .040$, $p < .001$), the omnibus SRLS pretest ($\beta = .422$, $p < .001$), the leadership efficacy pretest ($\beta = .119$, $p < .001$), and the cognitive skills pretest ($\beta = .102$, $p < .001$).

Block 3 contained academic background variables. Five variables emerged as statistically significant positive predictors. The four positive predictors included GPA ($\beta = .045$, $p < .001$), majoring in the social sciences, ($\beta = .035$, $p < .001$), majoring in the arts and humanities ($\beta = .016$, $p < .05$), and class year ($\beta = .109$, $p < .001$). The one statistically significant negative predictor was being an undecided major ($\beta = -.019$, $p < .01$). These three blocks together (Table 4.29) accounted for 35.5% of the variance in socially responsible leadership outcomes, a change in R^2 of 1.8%.

Block 4: Institutional characteristics. Institutional characteristics were included in block 4. In block 1 of this model, the three demographic predictors remained statistically significant. These included being Asian American/Asian ($\beta = -.040$, $p < .001$), male ($\beta = -.025$, $p < .01$), and an international student ($\beta = -.028$, $p < .001$).

In block 2 of the model, all five of the positive predictors of the dependent variable continued to be statistically significant. This included involvement in community

organizations ($\beta = .061$, $p < .001$), precollege leadership training ($\beta = .041$, $p < .001$), the omnibus SRLS pretest ($\beta = .422$, $p < .001$), the leadership efficacy pretest ($\beta = .120$, $p < .001$), and the cognitive skills pretest ($\beta = .101$, $p < .001$).

In block 3, four of the five previously significant variables remained significant. The three positive predictors included GPA ($\beta = .045$, $p < .001$), majoring in the social sciences, ($\beta = .035$, $p < .001$), and class year ($\beta = .109$, $p < .001$). Majoring in the arts and humanities no longer remained statistically significant. The one statistically significant negative predictor was being an undecided major ($\beta = -.019$, $p < .01$).

In block 4, neither institutional size nor control emerged as significant predictors. These four blocks together (Table 4.29) accounted for 35.5% of the variance in socially responsible leadership outcomes, indicating no change in R^2.

Block 5: College experiences. The fifth model contained additional variables from block 5 related to college experiences. All three variables within block 1, being Asian American/Asian ($\beta = -.030$, $p < .001$), being male ($\beta = -.019$, $p < .01$), and being an international student ($\beta = -.030$, $p < .001$), remained statistically significant in this model.

All variables in block 2 were significant in this model, and involvement in high school clubs and sports ($\beta = -.027$, $p < .001$) emerged as a statistically significant negative predictor. Previous involvement in community organizations switched from being a positive to a negative predictor ($\beta = -.045$, $p < .001$). Positive predictors continued to be precollege leadership training ($\beta = .019$, $p < .05$), the omnibus SRLS pretest ($\beta = .414$, $p < .001$), the leadership efficacy pretest ($\beta = .099$, $p < .001$), and the cognitive skills pretest ($\beta = .077$, $p < .001$).

Within block 3, transfer student status ($\beta = .029$, $p < .001$) emerged as a positive predictor, as did majoring in education ($\beta = .018$, $p < .01$). GPA, majoring in social sciences, being an undecided major, and class year no longer remained significant.

Institutional size remained statistically insignificant, but being a private institution emerged as a significant negative predictor ($\beta = -.025$, $p < .05$) in block 4.

Within block 5, a number of variables emerged as statistically significant positive predictors of socially responsible leadership outcomes. These included sociocultural conversations ($\beta = .195$, $p < .001$), performing community service ($\beta = .061$, $p < .001$), working off campus ($\beta = .036$, $p < .001$), being an active member of an on–campus organization ($\beta = .039$, $p < .001$), positional leadership frequency on campus ($\beta = .020$, $p < .05$), being an active member of an off-campus organization ($\beta = .051$, $p < .001$), and engaging in social change behaviors ($\beta = .171$, $p < .001$). This model (Table 4.29) explained 45.4% of the variance within the dependent variable, an R^2 change of 9.9%.

Block 6: Mentoring experiences. Model 6 included the previous 5 blocks with the addition of block 6, which related to student mentoring experiences by various individuals. In block 1, being Asian American/Asian ($\beta = -.030$, $p < .001$), being male ($\beta = -.016$, $p < .05$), or being an international student ($\beta = -.031$, $p < .001$) remained statistically significant negative predictors.

Within block 2, precollege leadership training no longer remained statistically significant. However, all other variables within block 2 remained statistically significant. These included involvement in high school clubs and sports ($\beta = -.029$, $p < .001$), prior involvement in community organizations ($\beta = -.045$, $p < .001$), the omnibus SRLS pretest (β

= .408, $p < .001$), the leadership efficacy pretest ($\beta = .098$, $p < .001$), and the cognitive skills pretest ($\beta = .079$, $p < .001$).

Within block 3, the two positive predictors of transfer student status ($\beta = .030$, $p < .001$) and being an education major ($\beta = .016$, $p < .05$) remained statistically significant positive predictors. No additional variables emerged or were dropped.

Again, institutional size remained statistically insignificant, but being a private institution was a significant negative predictor ($\beta = -.027$, $p < .05$) in block 4.

Block 5 contained all of the same significant positive predictors. These included sociocultural conversations ($\beta = .183$, $p < .001$), performing community service ($\beta = .060$, $p < .001$), working off campus ($\beta = .031$, $p < .001$), being an active member of an on-campus organization ($\beta = .035$, $p < .001$), positional leadership frequency on campus ($\beta = .019$, $p < .05$), being an active member of an off-campus organization ($\beta = .141$, $p < .001$), and engaging in social change behaviors ($\beta = .158$, $p < .001$).

Mentoring frequencies contained in block 6 provided several positive predictors of socially responsible leadership that were significant. These included faculty mentor frequency ($\beta = .050$, $p < .001$), staff mentor frequency ($\beta = .023$, $p < .01$), employer mentor frequency ($\beta = .025$, $p < .01$), community member mentor frequency ($\beta = .046$, $p < .001$), and student mentor frequency ($\beta = .032$, $p < .001$). Parent mentor frequency was the only variable not significant in this block. Model 6 (Table 4.29) explained 46.2% of variance within the dependent variable, a change in R^2 of .8%.

Block 7: Most significant mentor. Model 7, the final model, contained all other blocks plus block 7, which contained demographic and behavioral information on students' most significant mentors. Within this model, being White/Caucasian ($\beta = .018$, $p < .05$)

emerged as a positive predictor, while being Asian American/Asian ($\beta = -.015$, $p < .05$) and being an international student ($\beta = -.024$, $p < .01$) remained statistically significant negative predictors. Being male no longer remained a significant negative predictor of socially responsible leadership.

All significant variables in block 2 remained statistically significant. These included involvement in high school clubs and sports ($\beta = -.028$, $p < .001$), prior involvement in community organizations ($\beta = -.044$, $p < .001$), the omnibus SRLS pretest ($\beta = .382$, $p < .001$), the leadership efficacy pretest ($\beta = .089$, $p < .001$), and the cognitive skills pretest ($\beta = .074$, $p < .001$).

Within block 3, transfer student status ($\beta = .031$, $p < .001$), GPA ($\beta = .014$, $p < .05$), and majoring in social sciences ($\beta = .015$, $p < .05$) were statistically significant positive predictors. Majoring in education was no longer statistically significant.

In block 4, institutional size remained insignificant, while being a private institution ($\beta = -.029$, $p < .05$) remained significant.

In block 5, positional leadership frequency on campus was no longer significant, but leadership activities emerged as a statistically significant negative predictor ($\beta = -.018$, $p < .05$). Other remaining positive predictors included sociocultural conversations ($\beta = .150$, $p < .001$), performing community service ($\beta = .053$, $p < .001$), working off campus ($\beta = .028$, $p < .001$), being an active member of an on-campus organization ($\beta = .033$, $p < .001$), being an active member of an off-campus organization ($\beta = .040$, $p < .001$), and engaging in social change behaviors ($\beta = .136$, $p < .001$).

Only two mentoring frequencies remained significant in block 6: faculty mentor frequency ($\beta = .018$, $p < .05$) and community member mentor frequency ($\beta = .034$, $p < .001$).

Within the final block, block 7, only the two composite variables of mentoring were significant. These included mentoring for leadership empowerment ($\beta = .034$, $p < .001$) and mentoring for personal development ($\beta = .197$, $p < .001$), which were both statistically significant positive predictors of socially responsible leadership outcomes. Finally, model 7 (Table 4.29) explained 49.9% of variance within the dependent variable, a change in R^2 of 3.6%. The final adjusted R^2 for research (very high) institutions was 49.7%.

Comparison of Carnegie Classifications

In order to analyze differences between institution types, Table 4.30, a comparison table, was crafted to include the simple correlations of each of the independent variables with the dependent variable. In addition, the chart exhibits the final β and B for each of these variables, the R^2, and adjusted R^2 for each of the regressions of baccalaureate, master's, doctoral/research and research (very high) institutions.

Table 4.30

Predictors of Socially Responsible Leadership by Carnegie Classification

Variables	Baccalaureate			Master's			Doc/Research			Research (Very High)		
	r	Final β	Final B	r	Final β	Final B	r	Final β	Final B	r	Final β	Final B
Block 1: background/demographics												
Race: 1 = White/Caucasian	−.012	−.005	−.004	.012	.016*	.013*	.042**	.027	.021	.027**	.018*	.016*
Race: 1 = African American/Black	.003	.012	.015	.029***	.016	.017	.032*	.023	.028	.034***	−.002	−.003
Race: 1 = Asian American/Asian	−.068***	−.048***	−.057***	−.043***	−.034***	−.037***	−.067***	−.019	−.019	−.068***	−.015*	−.017*
Race: 1 = Latino/Hispanic	−.009	.019	.025	.005	−.008	−.009	.028	.014	.014	.020*	−.006	−.008
Gender: 1 = male	−.060***	−.015	−.012	−.050***	−.025***	−.021***	−.057***	−.023	−.019	−.061***	−.011	−.009
U.S. generational status: 1 = international	−.048***	−.037***	−.050***	−.028***	−.023**	−.033**	−.066***	−.041**	−.053**	−.053***	−.024**	−.031**
Block 2: high school experiences/leadership pretests												
Involvement in high school clubs and sports	.205***	−.051***	−.005***	.194***	−.027***	−.003***	.212***	−.038*	−.003*	.206***	−.028***	−.003***
Involvement in community organizations	.286***	.000	.000	.282***	−.021*	−.003*	.270***	−.032	−.004	.259***	−.044***	−.006***
Precollege leadership training	.276***	−.011	−.004	.261***	−.004	−.001	.260***	−.001	−.001	.250***	.007	.003
Omnibus SRLS pretest	.498***	.357***	.271***	.526***	.364***	.287***	.527***	.375***	.288***	.535***	.382***	.301***
Leadership efficacy pretest	.367***	.079***	.042***	.382***	.083***	.046***	.384***	.096***	.053***	.388***	.089***	.049***
Cognitive skills pretest	.318***	.071***	.046***	.343***	.071***	.048***	.335***	.063***	.041***	.327***	.074***	.050***
Block 3: academic background												
Transfer student status: 1 = started elsewhere	.010	.030**	.032**	.033***	.055***	.051***	.012	.049***	.048***	−.005	.031***	.031***
GPA	.104***	.024**	.010**	.137***	.042***	.018***	.107***	.034*	.014*	.076***	.014*	.006*
Major: 1 = biological sciences	.001	.014	.017	−.005	.001	.001	−.015	−.001	−.002	−.006	.003	.005
Major: 1 = business	−.023*	.000	.001	−.015*	.009	.009	−.008	.009	.008	−.013	−.002	−.003
Major: 1 = education	.020*	.017	.023	.011	.000	.000	.017	−.017	−.029	.016*	.010	.018

Table 4.30 (continued)

Variables	Baccalaureate			Master's			Doc/Research			Research (Very High)		
	r	Final β	Final B	r	Final β	Final B	r	Final β	Final B	r	Final β	Final B
Major: 1 = engineering	−.034**	−.004	−.010	−.025**	.005	.016	−.050**	.000	.000	−.043***	.010	.013
Major: 1 = social sciences	.058***	.012	.011	.035***	.006	.006	.060***	.006	.007	.056***	.015*	.015*
Major: 1 = arts and humanities	.014	−.001	−.001	.022**	−.005	−.005	.016	.007	.007	.004	.007	.008
Major: 1 = physical sciences	−.040***	−.019*	−.033*	−.043***	−.024***	−.048***	−.019	−.018	−.044	−.035***	.001	.002
Major: 1 = undecided	−.078***	−.012	−.026	−.066***	−.006	−.013	−.054**	.002	.004	−.047***	−.008	−.021
Class year	.098***	.007	.002	.096***	.008	.003	.069***	−.021	−.007	.076***	.005	.002
Block 4: institutional characteristics												
Size: 2 = medium, 3 = large	−.025*	.013	.009	−.014	.009	.006	−.022	.009	.005	−.032***	−.022	−.019
Control: 1 = public, 2 = private	.037**	−.026*	−.036*	.038***	−.024**	−.019**	.070***	.006	.006	.023**	−.029*	−.024*
Block 5: college experiences												
Sociocultural conversations	.374***	.154***	.077***	.378***	.145***	.075***	.358***	.145***	.075***	.371***	.150***	.078***
Residence on/off campus: 1 = on campus	.010	.015	.012	.009	.014	.011	.003	.034*	.026*	.018*	.011	.008
Leadership activities	.200***	−.006	.000	.175***	−.009	−.001	.218***	.025	.002	.170***	−.018*	−.001*
Community service: 1 = yes	.227***	.044***	.033***	.235***	.039***	.031***	.225***	.042**	.032**	.226***	.053***	.041***
Working off campus: 1 = yes	.036**	.031**	.028**	.028***	.013	.011	.052**	.020	.016	.053***	.028***	.025***
Work on campus: 1 = yes	.073***	−.001	−.001	.060***	.001	.000	.063***	.018	.015	.037***	−.006	−.005
Active member frequency on campus	.279***	.051***	.014***	.256***	.035***	.009***	.251***	.012	.003	.243***	.033***	.009***
Positional leadership frequency on campus	.244***	.002	.001	.220***	.000	.000	.232***	.023	.006	.218***	.013	.003
Active member frequency off campus	.186***	.019	.005	.204***	.033***	.010***	.220***	.042*	.012*	.179***	.040***	.012***
Positional leadership frequency off campus	.157***	.015	.005	.173***	.000	.000	.170***	−.013	−.004	.145***	−.010	−.003
Social change behaviors	.394***	.146***	.007***	.380***	.124***	.006***	.355***	.111***	.006***	.368***	.136***	.007***

Table 4.30 (continued)

	Baccalaureate			Master's			Doc/Research			Research (Very High)		
Variables	r	Final β	Final B	r	Final β	Final B	r	Final β	Final B	r	Final β	Final B
Block 6: mentoring experiences												
Faculty mentor frequency	.198***	.029**	.011**	.206***	.031***	.012***	.175***	.039*	.014*	.163***	.018*	.006*
Staff mentor frequency	.167***	.020	.007	.159***	.025**	.009**	.145***	−.005	−.002	.133***	.005	.002
Employer mentor frequency	.145***	.015	.005	.143***	.000	.000	.143***	.002	.001	.128***	.003	.001
Community member mentor frequency	.173***	.016	.006	.184***	.013	.005	.197***	.019	.007	.188***	.034***	.013***
Parent mentor frequency	.114***	.022*	.007*	.113***	.000	.000	.129***	.011	.004	.132***	.002	.001
Student mentor frequency	.130***	−.007	−.002	.136***	.008	.002	.133***	.030	.010	.143***	.006	.002
Block 7: most significant mentor												
Significant mentor staff: 1 = yes	.054***	.014	.020	.027**	.019*	.025*	.038*	.030*	.041*	.019*	.015	.019
Significant mentor employer: 1 = yes	−.008	−.009	−.013	−.008	.001	.002	.011	.018	.025	−.016*	−.005	−.007
Significant mentor student: 1 = yes	−.061***	−.003	−.002	−.061***	−.004	−.004	−.054**	−.004	−.003	−.033***	−.003	−.002
Significant mentor gender: 1 = male	−.009	.002	.002	−.009	−.005	−.004	−.005	.005	.004	−.019*	−.005	−.004
Significant mentor race: 1 = African American/Black	.033**	−.013	−.021	.033***	−.015*	−.021*	.045**	.018	.028	.036***	.000	−.001
Significant mentor race: 1 = Asian American/Asian	−.019	−.010	−.018	−.030***	−.016*	−.031*	−.054**	−.002	−.002	−.053***	−.013	−.018
Significant mentor race: 1 = Latino/Hispanic	−.001	−.012	−.028	.010	.003	.005	.023	.014	.023	.027**	.005	.010
Significant mentor race: 1 = unsure	−.025*	−.008	−.019	−.028**	−.009	−.018	−.020	.012	.024	−.034***	−.007	−.015
Mentoring for leadership empowerment	.376***	.035**	.005**	.387***	.038***	.006***	.384***	.055**	.008**	.369***	.034***	.005***
Mentoring for personal development	.437***	.198***	.018***	.459***	.206***	.019***	.446***	.195***	.018***	.444***	.197***	.018***
R^2	48.90%			49.80%			49.90%			49.90%		
Adjusted R^2	48.60%			49.60%			49.10%			49.70%		

*$p < .05$. **$p < .01$. ***$p < .001$.

Block 1: Background/demographics. As exhibited, within block 1, several statistically significant correlations and β values are found among the various Carnegie Classifications. With regard to race, although being White/Caucasian had a statistically significant correlation in both the doctoral/research ($r = .042$, $p < .01$) and research (very high) ($r = .027$, $p < .01$) institutions, after inclusion of all other variables, being White/Caucasian had statistically significant positive predictive value for master's ($\beta = .016$, $B = .013$, $p < .05$) and research (very high; $\beta = .018$, $B = .016$, $p < .05$) institutions. Being African American/Black had positive correlations for master's ($r = .029$, $p < .001$), doctoral/research ($r = .032$, $p < .05$), and research (very high; $r = .034$, $p < .001$) institutions, but after controlling for all other variables, it had no significant predictive value for any institution types. Being Asian American/Asian was significantly negatively correlated to the dependent variable at all institution types, but remained a statistically significant negative predictor at only baccalaureate ($\beta = -.048$, $B = -.057$, $p < .001$), master's ($\beta = -.034$, $B = -.037$, $p < .001$), and research (very high; $\beta = -.015$, $B = -.017$, $p < .05$) institutions. Being Latino/Hispanic was significantly correlated at research (very high; $r = .020$, $p < .05$) institutions but was insignificant at all institutions after controlling for all other variables.

Being male was significantly negatively correlated to the dependent variable at all institution types but remained a statistically significant negative predictor at only master's ($\beta = -.025$, $B = -.021$, $p < .001$) institutions. International student status was also statistically significantly correlated to the dependent variable at all institution types. Unlike gender, however, this variable remained a statistically significant negative predictor at all institutions, even after controlling for all other variables.

Block 2: High school experiences/leadership. Within block 2, many of the variables were significantly correlated and remained to be significant predictors of the dependent variable. Involvement in high school clubs and sports was positively correlated to the dependent variable at all institution types, but upon controlling for all other variables, it was actually a statistically significant negative predictor of socially responsible leadership for each institution type. Although involvement in community organizations was positively correlated to the dependent variable at all institution types, after accounting for other variables, it was a negative predictor at master's ($\beta = -.021$, $B = -.003$, $p < .05$) and research (very high) ($\beta = -.044$, $B = -.006$, $p < .001$) institutions. Precollege leadership training was statistically significantly positively correlated to the dependent variable at all institutions but was an insignificant predictor at all institutions. The omnibus SRLS pretest, leadership efficacy pretest, and cognitive skills pretest were all significantly positively correlated to socially responsible leadership outcomes, and all remained significant positive ($p < .001$) predictors throughout.

Block 3: Academic background. Many of the academic background variables would emerge, become insignificant, and reemerge throughout the various models. Transfer student status was statistically correlated at only master's ($r = .033$, $p < .001$) institutions, but it emerged to be a positive predictor of socially responsible leadership at a statistically significant level at all institution types, after incorporating other variables into these models. The GPA predictor was positively correlated at all institution types and remained a positive predictor at all institution types.

Many academic variables were correlated with the dependent variable, but after controlling for all other variables, they were not statistically significant predictors. This

included being an engineering major, which was negatively correlated at all institution types; being a social sciences major, which was positively correlated at all institution types (and remained a statistically significant positive predictor at research (very high) institutions); and being undecided, which was negatively correlated at all institution types. Majoring in biological sciences was neither correlated nor a predictor in the final model of any institution type. Majoring in business was negatively correlated at baccalaureate ($r = -.023, p < .05$) and master's ($r = -.015, p < .05$) institutions, but was not a significant predictor. Majoring in education was positively correlated at baccalaureate ($r = .020, p < .05$) and research (very high; $r = .016, p < .05$) institutions but was also not a significant predictor. Majoring in the arts and humanities was positively correlated at master's ($r = .022, p < .01$) institutions but was not a significant predictor at any institutions. Majoring in the physical sciences was negatively correlated at baccalaureate ($r = -.040, p < .001$), master's ($r = -.043, p < .001$), and research (very high; $r = -.035, p < .001$) institutions but remained a statistically significant predictor at only baccalaureate ($\beta = -.019, B = -.033, p < .05$) and master's ($\beta = -.024, B = -.048, p < .001$) institutions. Class year had a positive correlation at all institutions but did not remain a significant predictor at any of these institution types.

Block 4: Institutional characteristics. Institutional size had a statistically significant negative correlation at baccalaureate ($r = -.025, p < .05$) and research (very high; $r = -.032, p < .001$) institutions but was not a statistically significant predictor at any institution type after controlling for other variables. Attending a private institution had a positive correlation at all institution types, and it became a statistically significant negative predictor at baccalaureate ($\beta = -.026, B = -.036, p < .05$), master's ($\beta = -.024, B = -.019, p < .01$), and research (very high; $\beta = -.029, B = -.024, p < .05$) institutions.

Block 5: College experiences. In block 5 all of the environmental variables, with the exception of living on campus, had a statistically significant positive correlation with the dependent variable at all institution types. Living on campus was positively correlated at research (very high; $r = .018$, $p < .05$) institutions and was a positive predictor at doctoral/research ($\beta = .034$, $B = .026$, $p < .05$) institutions. Sociocultural conversations remained statistically significant positive predictors at all institution types, even after controlling for other variables, as did participating in community service and involvement in social change behaviors.

Working on campus was not a significant predictor at any institution type, nor was positional leadership frequency on or off campus. Involvement in leadership activities was a statistically significant negative predictor at research (very high; $\beta = -.018$, $B = -.001$, $p < .05$) institutions. Working off campus was a statistically significant positive predictor at baccalaureate ($\beta = .031$, $B = .028$, $p < .01$) and research (very high; $\beta = .028$, $B = .025$, $p < .001$) institutions. Active member frequency on campus was a positive predictor at baccalaureate ($\beta = .051$, $B = .014$, $p < .001$), master's ($\beta = .035$, $B = .009$, $p < .001$), and research (very high; $\beta = .033$, $B = .009$, $p < .001$) institutions. Active member frequency off campus was a statistically significant predictor at master's ($\beta = .033$, $B = .010$, $p < .001$), doctoral/research ($\beta = .042$, $B = .012$, $p < .05$), and research (very high; $\beta = .040$, $B = .012$, $p < .001$) institutions.

Block 6: Mentoring experiences. Similarly, mentor frequency by all types of mentors had statistically significant positive correlations at all institution types. Faculty mentor frequency remained a statistically significant positive predictor at all institution types, but employer and student mentor frequency were not significant predictors at any institution

types. Staff mentor frequency remained statistically significant at master's ($\beta = .025$, $B = .009$, $p < .01$) institutions only. Community member mentor frequency was a positive predictor at research (very high; $\beta = .034$, $B = .013$, $p < .001$) institutions only, while parent mentor frequency was a positive predictor at baccalaureate ($\beta = .022$, $B = .007$, $p < .05$) institutions only.

Block 7: Most significant mentor. Within block 7, having a student most significant mentor as compared to a faculty most significant mentor was negatively correlated at all institutions but was no longer significant as a predictor at any of these institutions. As compared to a faculty most significant mentor, having a staff member as a most significant mentor was positively correlated at all institution types but remained a statistically significant predictor at only master's ($\beta = .019$, $B = .025$, $p < .05$) and doctoral/research ($\beta = .030$, $B = .041$, $p < .05$) institutions. Having an employer as a most significant mentor as compared to a faculty most significant mentor was positively correlated at a statistically significant level only at research (very high; $r = -.016$, $p < .05$) institutions and was not a significant predictor any institution type.

Having a male mentor was negatively correlated to the dependent variable at research (very high; $r = -.019$, $p < .05$) institutions only and was not a statistically significant predictor at any institution type. Having an African American/African most significant mentor was positively correlated at all institution types but was a predictor at only at master's ($\beta = -.015$, $B = -.021$, $p < .05$) institutions, and it was a negative predictor after controlling for the other variables. Having an Asian American/Asian most significant mentor was negatively correlated at master's ($r = -.030$, $p < .001$), doctoral/research ($r = -.054$, $p < .01$), and research (very high; $r = -.053$, $p < .001$) institutions but was only a negative predictor at

master's ($\beta = -.016$, $B = -.031$, $p < .05$) institutions. Having a Latino/Hispanic most significant mentor was positively correlated at research (very high; $r = .027$, $p < .01$) institutions only and was not a significant predictor. Being unsure of the most significant mentor race was negatively correlated at baccalaureate ($r = -.025$, $p < .05$), master's ($r = -.028$, $p < .01$), and research (very high; $r = -.034$, $p < .001$) institutions but did not remain a statistically significant predictor at any institution type.

The mentoring for leadership empowerment and mentoring for personal development composite variables were both positively correlated with the dependent variable and also remained statistically significant positive predictors of socially responsible leadership outcomes at all institution types.

Each of these regressions had an R^2 between 48% and 50%. The baccalaureate regression had an adjusted R^2 of 48.6%, the master's regression had an adjusted R^2 of 49.6%, the doctoral/research regression had an adjusted R^2 of 49.1%, and the research (very high) regression had an adjusted R^2 of 49.7%.

Summary

This chapter presented the findings of the quantitative study utilizing descriptive, inferential, and multivariate statistics. Cross tabulations provide the background information of student respondents, as well as that of students' reported most significant mentors. Results of the cross-tabulations found that most respondents at each type of institution were White/Caucasian. Also, at each of the institutions, the majority of respondents were female and heterosexual. The majority of students did not have disabilities, and the greatest percentage of students with reported disabilities were at associate's institutions (16.9%).

At all five types of institutions, the greatest percentage of students were born in the United States and had grandparents and parents who were born in the United States as well. The highest percentage of students at each of these institutions was Catholic. At associate's institutions, the greatest percentage of students reported that the highest degree attained by a parent was a high school diploma or GED. At the four other institution types, the largest percentage of students indicated that the highest degree attained by a parent was a bachelor's degree. With regard to parents' combined salaries, the largest percentage of students at all four institutions indicated they did not know this amount. However, the second largest percentage at associate's institutions reported parents' combined salaries between $12,500 and $24,999 (13.3%), whereas at all other institution types, the second-highest parent combined salary was between $100,000 and $149,999.

The largest percentage of respondents at each institution type reported starting at the current institution. A very high percentage (over 70%) of respondents at each of the institution types reported having a GPA above 3.0. The greatest percentage of students at baccalaureate and research (very high) institutions reported majoring in social sciences, whereas at master's and doctoral/research institutions, the highest percentage reported majoring in business.

Descriptive statistics were also utilized to understand the extent to which demographics of students' most significant mentors varied by institution type. At associate's, baccalaureate, master's, and doctoral/research institutions, over 50% of students indicated that their most significant mentors were faculty mentors. At research (very high) institutions, this was also the most-reported type of mentor, indicated by 39.8% of

respondents. At each of the institution types, a majority of respondents indicated that their most significant mentors were female and that their mentors were White/Caucasian.

The results of inferential analyses utilized to answer the respective research questions, as well as the exploratory factor analyses conducted on several observed variables to justify construction of composite variables were explained next. The one-way ANOVA found a statistically significant difference in the omnibus variable pretest among different institution types, but the effect size was small ($\eta^2 = .002$), indicating that Carnegie Classification only influenced 0.2% of the variance in the omnibus variable pretest. The post hoc test found a significant difference to exist between baccalaureate and master's institutions, baccalaureate and doctoral/research institutions, baccalaureate and research (very high) institutions, master's and doctoral/research institutions, and master's and research (very high) institutions.

Next, the exploratory factor analyses found all three of the associated observed variables to have sufficient factor loadings ($\eta > 0.600$) to justify use in the composite variable related to mentoring for leadership empowerment. The one-way ANOVA found a statistically significant difference in the mentoring for leadership empowerment composite variable among different institution types, but this effect size was also small ($\eta^2 = .002$), indicating that Carnegie Classification only influenced 0.2% of the variance in the mentoring for leadership empowerment variable. The post hoc test found a significant difference to exist between baccalaureate and research (very high) institutions, master's and research (very high) institutions, and doctoral/research and research (very high) institutions.

The exploratory factor analyses found all seven of the observed variables related to mentoring for personal development to have sufficient factor loadings ($\eta > 0.600$) to justify use in the composite variable related to mentoring for personal development. The one-way

ANOVA found a statistically significant difference in the mentoring for personal development composite variable among different institution types, but the effect size was also small ($\eta^2 = .003$), indicating that Carnegie Classification only influenced 0.3% of the variance in the mentoring for personal development variable. The post hoc test found a significant difference to exist between baccalaureate and research (very high) institutions, master's and research (very high) institutions, and doctoral/research and research (very high) institutions.

To answer research question five, a statistically significant difference in both the pretest and outcome measures was found by institution type. Once again, however, the effect sizes were very small. The effect size for the pretest measure ($\eta^2 = .001$) indicated that only 0.1% of the difference in the pretest could be explained by Carnegie Classification. The post hoc test found the significant difference in the pretest to exist between associate's institutions and master's institutions, baccalaureate and doctoral/research institutions, master's and doctoral/research institutions, master's and research (very high) institutions, and doctoral/research and research (very high) institutions. The effect size for the outcome measure of spirituality was also ($\eta^2 = .001$), indicating that only 0.1% of the difference in the outcome measure could be explained by Carnegie Classification. The only significant differences in the Scheffe post hoc test were between baccalaureate and doctoral/research institutions, master's and doctoral/research institutions, and doctoral/research and research (very high) institutions.

A final one-way ANOVA examined any difference in the outcome omnibus SRLS variable by Carnegie Classification. A significant difference was detected, but the effect size was tiny ($\eta^2 = .0001$), indicating that only 0.01% of the difference in this variable could be

explained by Carnegie Classification. The post hoc test found the only significant differences to exist between master's and doctoral/research institutions.

Results of the five sequential, hierarchical regression analyses found that the independent variables, entered into the regression analyses by input variables and environment variables, could explain 46.3% (adjusted $R^2 = .463$) of the variance at associate's institutions, 48.6% (adjusted $R^2 = .486$) of the variance at baccalaureate institutions, 49.6% (adjusted $R^2 = .496$) of the variance at master's institutions, 49.1% (adjusted $R^2 = .491$) of the variance in doctoral/research institutions, and 49.7% (adjusted $R^2 = .497$) of the variance at research (very high) institutions, as it relates to the dependent variable of socially responsible leadership capacity.

At associate's institutions, the second block of high school experiences contributed to approximately 29.1% ($\Delta R^2 = .291$) of the explanatory value, and college experiences contributed to approximately 12.4% ($\Delta R^2 = .124$) of the explanatory value. The final block related to most significant mentor contributed to approximately 4.8% of the variance ($\Delta R^2 = .048$). The strong predictors of socially responsible leadership capacity in the final associate's model included the omnibus SRLS pretest measure ($\beta = .400$, $B = .287$, $p < .001$), sociocultural conversations ($\beta = .189$, $B = .086$, $p < .001$), social change behaviors ($\beta = .116$, $B = .006$, $p < .05$), and mentoring for personal development ($\beta = .191$, $B = .015$, $p < .001$).

At baccalaureate institutions, the second block of high school experiences contributed to approximately 29.3% ($\Delta R^2 = .293$) of the explanatory value, and college experiences contributed to approximately 10.9% ($\Delta R^2 = .109$) of the explanatory value. The final block related to most significant mentor contributed to approximately 3.7% of the variance ($\Delta R^2 = .037$). Institutional characteristics added no explanatory value to the model ($\Delta R^2 = .000$).

Statistically significant positive predictors with predictive value greater than .100 ($\beta > .100$, $p < .05$) included the omnibus SRLS pretest ($\beta = .357$, $B = .271$, $p < .001$), sociocultural conversations ($\beta = .154$, $B = .077$, $p < .001$), social change behaviors ($\beta = .146$, $B = .007$, $p < .001$), and mentoring for personal development ($\beta = .198$, $B = .018$, $p < .001$).

At master's institutions, the second block of high school experiences contributed to approximately 31.9% ($\Delta R^2 = .319$) of the explanatory value, and college experiences contributed to approximately 9.3% ($\Delta R^2 = .093$) of the explanatory value. The final block related to most significant mentor contributed to approximately 4.0% of the variance ($\Delta R^2 = .040$). Institutional characteristics added no explanatory value to the model ($\Delta R^2 = .000$). Statistically significant positive predictors with predictive value greater than .100 ($\beta > .100$, $p < .05$) at master's institutions included the omnibus SRLS pretest ($\beta = .364$, $B = .287$, $p < .001$), sociocultural conversations ($\beta = .145$, $B = .075$, $p < .001$), social change behaviors ($\beta = .124$, $B = .006$, $p < .001$), and mentoring for personal development ($\beta = .206$, $B = .019$, $p < .001$).

At doctoral/research institutions, the second block of high school experiences contributed to approximately 31.5% ($\Delta R^2 = .315$) of the explanatory value, and college experiences contributed to approximately 9.3% ($\Delta R^2 = .093$) of the explanatory value. The final model related to most significant mentor contributed to approximately 4.2% of the variance ($\Delta R^2 = .042$). Institutional characteristics added .1% ($\Delta R^2 = .001$) of explanatory value to the model. Variables with predictive value greater than .100 ($\beta > .100$, $p < .05$) at doctoral/research institutions included the omnibus SRLS pretest ($\beta = .375$, $B = .288$, $p < .001$), sociocultural conversations ($\beta = .145$, $B = .075$, $p < .001$), social change behaviors ($\beta =$

.111, $B = .006$, $p < .001$), and mentoring for personal development ($\beta = .195$, $B = .018$, $p < .001$).

Finally, at research (very high) institutions, the second block of high school experiences contributed to approximately 32.6% ($\Delta R^2 = .326$) of the explanatory value, and college experiences contributed to approximately 9.9% ($\Delta R^2 = .099$) of the explanatory value. The final model related to most significant mentor contributed to approximately 3.6% of the variance ($\Delta R^2 = .036$). Institutional characteristics added no explanatory value ($\Delta R^2 = .000$) to the model. The variables with predictive value greater than .100 ($\beta > .100$, $p < .05$) at research (very high) institutions included the omnibus SRLS pretest ($\beta = .382$, $B = .301$, $p < .001$), sociocultural conversations ($\beta = .150$, $B = .078$, $p < .001$), social change behaviors ($\beta = .111$, $B = .007$, $p < .001$), and mentoring for personal development ($\beta = .197$, $B = .018$, $p < .001$).

This chapter reviewed the background characteristics of the respondents and their most significant mentors. It examined the differences in precollege and outcome measures of socially responsible leadership, mentoring for leadership empowerment and personal development, and pre- and postmeasures of spirituality, all in terms of institution type. Finally, this chapter exhibited the unique ways in which the input and environmental variables predict socially responsible leadership capacity by institution type. All of the analyses provide substance for discussion in Chapter 5.

CHAPTER 5. DISCUSSION, IMPLICATIONS FOR RESEARCH, POLICY, PRACTICE, AND CONCLUSIONS

Overview

This chapter discusses the findings related to the seven research questions guiding this study's development. This chapter begins with a summary of this study. Next, discussion of the results is presented, organized by respective research question. Reflections of the theoretical framework of this study are discussed. Implications for research, policy, and practice exhibit the value of this study to the field. Finally, this chapter ends with a final conclusions section.

Summary of this Study

Chapter 1 shared the importance of this study, which was to fill a void in the literature and provide information to guide administrators and leadership educators who are working to meet the need for responsible leadership in the 21st century in an environment characterized by complexity. This chapter provided an overview of this study to help readers understand how mentoring functions to foster socially responsible leadership capacity and how this relationship may vary by institution type, as categorized by Carnegie Classification through utilization of Astin's (1993) I-E-O conceptual model.

Chapter 2 provided a review of the literature related to the variables within this study. This chapter explored the need for leadership in an increasingly globalized society and the shifting paradigm related to leadership as a teachable and learnable skill. Mentoring literature was reviewed, including the use of mentoring as a mechanism for support through challenging experiences. A discussion of institutional type differences and information

regarding the Carnegie Classification followed, and Chapter 2 concluded with further examination of the theoretical framework that undergirds this study's development.

Next, Chapter 3 provided an overview of the methodology utilized in this study. Information regarding the data source, including the population, sample, and survey instrument, was discussed. This chapter shared how the seven research questions would be answered utilizing descriptive, inferential, and multivariate statistics and Astin's (1993) I-E-O conceptual model (*Figure 3.1*). The construction of various composite and scale measures was also shared, including information regarding validity and reliability of the scales. This chapter included ethical issues, delimitations, and limitations.

Chapter 4 provided the findings of this study. Findings of the descriptive statistics related to the background characteristics of both the respondents and the respondents' reported most significant mentors provided information as to how these characteristics may differ by institution type. The ANOVA results provided information related to significant differences in precollege measures of the SRLS, mentoring behaviors, spirituality measures, and the outcome variable of socially responsible leadership. Finally, the sequential hierarchical regression results provided data utilized to understand how various input and environmental variables influence socially responsible leadership and how these unique effects vary by institution type.

Finally, Chapter 5 not only summarizes the results, but will examine how these results relate back to the literature, research questions, and conceptual framework. Of most importance, Chapter 5 will provide information related to the applications of this study to policy, practice, and future research. Final conclusions will also be provided.

Discussion of the Results

Demographic characteristics of respondents

Results of the cross tabulations of respondent demographic characteristics showed differences between students at associate's institutions and students at all other institution types. It was not surprising that the highest percentage of respondents at each of the institution types was of traditional college age. It is important also that over 10% of students at associate's institutions were between 40 and 59, while at all other institutions, this population category was made up of less than 3% of respondents. As Dowd (2007) found, associate's institutions are gateways and gatekeepers, "as a point of access in a stratified higher education system" (p. 408). Hoachlander, Sikora, and Horn (2003) found that individuals attend associate's institutions for many different reasons, which would explain the high percentage of students in the 40-59 age demographic.

Other major differences between associate's and other institution types were related to disabilities, US generational status, highest degree attained by a parent, and combined salaries of parents. Given the role associate's institutions play in the higher education environment, it was not surprising that the highest percentage of students with disabilities was at associate's institutions. However, the percentage of students with disabilities at all institution types seemed higher than was anticipated. Interestingly, it was found that the greater the focus on research according to the institutional Carnegie Classification (comparing associate's to baccalaureate, baccalaureate to master's, and so forth), the lower the reported percentage of those with disabilities. This could mean that students who do have disabilities feel that at institutions with a lesser focus on research and greater focus on undergraduate students, they will get more individualized attention. It is also possible that

students with disabilities are not retained at institutions that are more research-oriented. The percentage of students with disabilities may also be influenced by academic standards for admission into the different institutions.

Results of the cross-tabulation indicated the very homogenous racial background of survey respondents across institutional types. The sample contained between 52.6% and 78.7% White/Caucasian respondents depending on Carnegie Classification. Related to the diversity of the overall 2009 MSL dataset, Campbell et al. (*in press*) found that of institutions involved "Seven of the institutions had a special focused designation: two of the participating institutions were HBCU's, two were Hispanic-serving institutions, and three were women's colleges" (p. 12). Given the importance of diversity within future leadership of our country and world, it is important to have a more diverse sample in future studies to better understand how mentoring influences the leadership development of students of varied backgrounds. This is particularly important given mixed findings of past research related to interracial mentoring.

Reported US generational status differed markedly between associate's institutions and other institution types. The highest percentage of foreign-born resident students was reported at associate's institutions (18.1%), while at other institutions, this percentage was between 1.4% and 3.2%. In addition, the highest percentage of international students (5.7%) was found at associate's institutions, followed by baccalaureate (4.9%), doctoral/research (3.4%), research (very high) (3.2%), and then master's (2.7%) institutions. This was an interesting finding, given that The Chronicle of Higher Education (2011) found that in 2008-2009, doctoral institutions graduated the greatest percentage of nonresident foreign students (25%), followed by master's (12%) institutions. This could be that a lower number of

international students responded to the survey, which has implications for response bias. It is also possible that certain types of institutions are more effective at assisting international students through graduation which would explain the discrepancy of percentage attending and percentage graduating.

The greatest percentage of students at all but research (very high) institutions indicated not knowing the combined salary of their parents. At associate's institutions, the next greatest percentage of respondents (13.3%) indicated a combined parent salary of between $12,500 and $24,999; this compares to the highest percentage of between $100,000 and $149,999 at most other institution types. Finally, 21.9% of students at associate's institutions indicated that the highest degree attained by a parent was a high school diploma or GED, while at all other institutions, this number was below 3%. In comparison, at all other institutions, the largest percentage of respondents indicated their parents had baccalaureate degrees.

The importance of the differences between associate's and other institutions is in the explanatory value this may have for students' priorities at these institutions. It would seem that for many of the students at associate's institutions, simply understanding the world of higher education could be a major challenge and that a great deal of time and energy would be expended in this task. This lack of understanding may negatively influence some of the confidence measures related to the consciousness of self of the Social Change Model. Students at associate's institutions may have less time for the activities that promote leadership development. Conversely, the diverse backgrounds of these students may support the outcomes of the Social Change Model, including controversy with civility, citizenship, and change.

Given the make-up of today's higher education institutions, it was not surprising that a higher percentage of females than males completed the survey. The Chronicle of Higher Education (2011) found that in 2008-2009, females earned 62%, 57%, 60%, 49%, and 52% of degrees at associate's, baccalaureate, master's, professional, and doctoral institutions, respectively. The percentage of female respondents within this study ranged from between 61.6% and 67.9%. An unexpected finding related to the academic background of students was the number of transfer students at all types of institutions. Over 15% of students at each type of institution had started somewhere else. The percentage of transfer students in this study was highest at master's institutions (25%), followed by associate's institutions (24.4%). These high percentages exemplify the swirling phenomenon prevalent in today's higher education environment, in which students attend multiple institutions during their academic careers (McCormick, 2003). As will be discussed later, being a transfer student was a positive predictor of socially responsible leadership outcomes at all but master's and associate's institutions. Therefore, this high percentage of transfer students should be seen as an asset to institutions.

It is believed that one of the limitations of any survey study, social desirability, was exemplified in the reported academic background characteristics. Over 70% of students claimed to have a GPA above a 3.00. This assumed inflation of reported GPA is important to note, as GPA served as a statistically significant positive predictor of socially responsible leadership at several institution types.

Demographic characteristics of respondents' most significant mentors

The greatest percentage of students at all institution types reported a faculty member as a most significant mentor. Interestingly, the highest percentage of students reporting a

most significant mentor as a faculty member was at associate's institutions (56.9%). This finding may support the idea that significant mentors are identified through the teaching and advising process and not as frequently through the research process. At associate's institutions, the focus is on undergraduate education, which was the population sampled; therefore, it is logical that at associate's institutions would have the highest response of faculty as most significant mentors, given the focus on undergraduate education at these institutions. This finding of high percentage of faculty most significant mentors at associate's institutions may also be related to class size at associate's institution. The next highest percentage of students at all institution types reported a significant mentor who was a student affairs staff member. This was not surprising given the focus of student affairs staff on student development and counseling.

That over half of respondents indicated having a most significant mentor who was female was not surprising as historically females have often been viewed as more nurturing than male counterparts. It had been anticipated that a higher percentage than between 50% and 60% at each type of institution would report a most significant mentor as a female, which was the case. This lower-than-expected percentage of female most significant mentors may be related to the greater presence of male faculty members in higher education. The Chronicle of Higher Education (2011) found that in academic year 2008-2009, 57.1% of faculty members were male. It is noteworthy that a higher percentage of students at each institution type indicated having a mentor who was transgendered than the percentage of students who claimed to be transgendered. This was unanticipated given the sensitive nature of gender. It is possible that students were once again responding in what they perceived to be the socially desirable way. It could also suggest that the transgendered characteristic was

something that drew the student to the given mentor since many students go through identity development in their college experiences.

The researcher was interested in understanding how percentages related to race of most significant mentors did or did not parallel the racial background percentages of respondents at each institution type. If they were similar, it could indicate that being of the same race was important in establishing a mentoring relationship. The highest percentage of respondents at all institutions indicated having a mentor who was White/Caucasian, which is congruent with this hypothesis since the highest percentage of students reported being White/Caucasian. It was also congruent with the statistics from The Chronicle of Higher Education (2011), which found that 72.4% of employees at all institutions in 2008-2009 were White. The next highest percentage of respondents selected multiple racial groups of their most significant mentor. Since the question of a significant mentor's race was structured somewhat differently than the question of a respondent's own race, this made it hard to compare the relationship\ between the two. Relatively speaking, the racial group percentages of most significant mentors seemed to reflect the percentages of respondents' reported races at these institutions.

Pretest of the Omnibus Socially Responsible Leadership Scale

The third research question explored whether a statistically significant difference existed among various institution types related to the pretest measure of the SRLS. As the SRLS pretest scale measures for precollege attitudes of the Social Change Model, it was hypothesized that a statistically significant difference may exist if certain types of students interested in social change found certain types of institutions particularly attractive given the institution's focus on teaching or research. For example, if students having a higher SRLS

pretest measure felt they would have more opportunities to become involved in social change at baccalaureate institutions and were therefore drawn to attend a baccalaureate institution, these institutions would have a higher measure of this value.

A statistically significant difference among institution types was found which was not surprising, but the very small the effect size was ($\eta^2 = .002$) was unanticipated. This effect size indicates that only 0.2% of the difference in the pretest measure can be explained by institution type. As had been thought, baccalaureate institutions did have a significantly higher mean score than master's institutions. What was surprising was that doctoral/research and research (very high) institutions had greater mean values than baccalaureate and doctoral/research institutions and that research (very high) institutions also had significantly higher mean values than master's institutions. These were indeed small mean differences. Since some of the group values of the Social Change Model would seem to be enhanced by larger institutions, it is possible that students at these institution types are drawn to more diverse institutions.

It is noteworthy that the pretest measures used wording such as, "when you were in high school" and "before you started college," which is why these are considered quasi-pretests. Some students may forget their past involvements or perceptions. It is important to consider the limitations of the pretest measures as they do influence the outcome measure of socially responsible leadership.

Differences in type of mentoring by institutional type

It was hypothesized that the types of mentoring, for leadership empowerment or for personal development, would be significantly different based on institution type. It was also hypothesized that, based on the individual variables that composed the mentoring for

personal development composite variable (i.e., this mentor helped me to identify areas for self-improvement or helped me live up to my potential) that conversations related to these topics would more frequently take place in baccalaureate or master's institutions since these institutions tend to be more focused on undergraduate student development. Although less certain of mentoring for leadership empowerment, it was thought that a statistically significant difference may exist. The variables in mentoring for leadership empowerment included items, such as, "this mentor helped me empower myself to engage in leadership."

As indicated in Chapter 4, the ANOVA did discover a statistically significant difference in mean measures of mentoring for leadership empowerment and mentoring for personal development by institution type. Similar to the pretest SRLS measure, it was thought the effect size for both of these variables would be larger. The effect size for mentoring for personal development was 0.3% ($\eta^2 = .003$), indicating that only 0.3% of variance in the variable was explained by Carnegie Classification. The effect size for mentoring for leadership empowerment was only 0.2% ($\eta^2 = .002$), meaning that only 0.2% of the variance in the mentoring variable was explained by Carnegie Classification. As indicated in the findings section, Cohen (1988) found this to be a very small effect size.

After conducting the post hoc test, it was found that both baccalaureate and master's institutions had a higher mean value of mentoring for personal development than research (very high) institutions. These were expected results. In addition, doctoral/research institutions had a higher mean value than research (very high) institutions. These findings support the idea that those institutions with a greater institutional focus on undergraduate students tended to have more frequent conversations regarding self-improvement and

potential. However, it is once again important to realize that these are very small mean differences.

The post hoc results of the mentoring for leadership empowerment construct found that, identical to the results of the mentoring for personal development, both baccalaureate and master's institutions a had higher mean score than research (very high) institutions and that doctoral/research institutions had a higher score than research (very high) institutions. It is interesting to note that the mean differences are found among the same institution types for both measures, with research (very high) having a lower mean value than baccalaureate, master's, or doctoral/research. It is somewhat surprising that no mean difference was found between associate's institutions and any other type of institution, suggesting that the amount of mentoring going on at associate's institutions is similar to that of other institution types.

Pretest and outcomes of spirituality by institution type

The researcher was interested in understanding how spirituality, both in terms of pretest measures and outcome measures, may differ by institution type. This was of interest as an increased amount of research has focused on spirituality on college campuses and since spirituality would seem relevant to social change behaviors. It was hypothesized that a statistically significant mean difference would be found between baccalaureate institutions and all other institution types. This hypothesis was supported in a study by Kuh and Gonyea (2005) who found and that, although institutional size and selectivity generally had little or no effect on variables related to spirituality, "baccalaureate general colleges tend to differ more from other types of institutions…largely due to the presence of so many faith-based colleges within baccalaureate general college type" (Kuh & Gonyea, 2005, p. 7). Gonyea

and Kuh (2006) found that religious affiliation tended to have the most influence on variables related to spirituality outcomes.

For these reasons, the fact that a statistically significant difference did exist with pretest measures of spirituality was no surprise. Like the other ANOVAs, however, the effect size was very small, leading to limited practical applications. Only 0.1% ($\eta^2 = .001$) of the difference in the pretest measure of spirituality could be attributed to Carnegie Classification. The post hoc test revealed that associate's institutions had a higher mean value of spirituality than master's institutions, which was not anticipated. In addition, doctoral/research institutions had a higher mean value than baccalaureate, master's, or research (very high) institutions. This, again, was contrary to what had been anticipated. Finally, research (very high) institutions had a higher mean value than master's institutions. These findings seemed to indicate that, although a statistically significant difference was found, students were most likely not choosing institutions based on their feelings that the institution would align with their values. These findings would also provide supporting evidence that conversations related to spirituality and meaning are frequently occurring not only in religiously affiliated institutions but in all types of institutions.

Findings related to outcome measures were very similar to the pretest measures. Students reported higher mean scores in spirituality at doctoral/research institutions than at baccalaureate, master's, and research (very high) institutions. Again, this was surprising given the previous research. Institution type accounted for only 0.1% of explanatory value of both the pretest and outcome measure, indicating little influence of different college environments on these variables and again would support the idea that conversations related

to spirituality and meaning are more frequently occurring not only in religiously affiliated institutions but in all types of institutions.

Omnibus Socially Responsible Leadership Scale

The researcher hypothesized that a statistically significant difference would exist in the omnibus SRLS pretest measure among institutions of different Carnegie Classifications, given their differing focus of research and teaching undergraduates. Based on previous research (McCormick et al., 2009; Pascarella et al., 2004; Pike et al., 2003; Seifert et al., 2006, 2010; Umbach & Kuh, 2006) it had been thought that environmental variables would differ, and therefore, this outcome measure would be different between institution types. Although a statistically significant difference was found, the effect size ($\eta^2 = .0001$) was even smaller than that of the other ANOVAs, indicating only 0.01% of the difference in the omnibus SRLS pretest measure could be accounted for by Carnegie Classification. It had been thought that the significant difference in student measures of socially responsible leadership would exist between baccalaureate and other institution types, but rather, it was found that students at doctoral/research institutions had a higher mean value than at master's institutions. This finding led into the study of how the various input and environmental variables influenced the outcome variable differently by institutional type.

Prediction of socially responsible leadership capacity development

The findings of the sequential hierarchical regression analyses provided information to assist in understanding how the various input and environmental variables predict socially responsible leadership. It is particularly important to understand how these variables predict the dependent variable differently by institution type. Input variables provide insight into how demographic and precollege characteristics influence socially responsible leadership,

while environmental variables can help administrators at different types of institutions understand how they can foster practices that promote the development of socially responsible leadership.

Input variables

Background/demographics. Several of the background/demographic characteristics emerged as significant predictors. As mentioned earlier in discussion of the background of respondents, the sample was very homogenous in terms of race and therefore caution is warranted in interpretation of findings. Of interest was that being Asian American/Asian was a statistically negative predictor of socially responsible leadership at baccalaureate, master's, and research institutions. This is congruent with the findings of Dugan et al. (2008), in which Asian Pacific students were found to have lower scores of socially responsible leadership. Dugan and Komives (2010) also found that the consciousness of self measure was lower for Asian American students than white students; this finding could partially account for the negative predictive value of the omnibus SRLS variable and can assist practitioners in considering how they can assist those of Asian American/Asian background in developing socially responsible leadership.

Being African American/Black was significantly correlated with the omnibus variable in many of the models in this study, but it did not remain a statistically significant predictor. Dugan et al. (2008) found that African American students had the highest values of socially responsible leadership, and Dugan and Komives (2010) found that being African American had a positive relationship with the change dimension of the Social Change Model. That being African American/Black did not remain significant in this study suggests that other variables affected the variable's influence.

It had been thought that being male would remain a negative predictor of socially responsible leadership throughout all of the models as this variable was negatively correlated with the dependent variable at all institution types. This hypothesis was supported by two studies, Dugan and Komives (2007) and Dugan et al. (2008), which found that women reported slightly higher scores than men in outcomes of socially responsible leadership. However, being male was a statistically significant negative predictor in the final model of only master's institutions. Both the findings related to being African American/Black and male would indicate that environmental variables, such as college involvement, reduced the explanatory value of these background demographics.

Being an international student was a statistically significant negative predictor in the final models for all but associate's institutions. It is possible that international students may be more focused on purely academic endeavors as opposed to leadership involvement. In addition, certain aspects of the Social Change Model group values and society/community values may vary by culture. For example, some of the Cs in group values such as collaboration or controversy with civility may not be as valued in certain cultures as they are in the United States.

What is most interesting about the background/demographics block is that it explains so little of the dependent variable. The change in R^2 for this block ranges from .008 to .028, indicating that, at most, this block predicts 3% of the dependent variable. The researcher had thought these demographic variables would explain a greater percentage of socially responsible leadership outcomes. However, Dugan and Komives (2010) had similar demographic inputs and found low predictive value as well.

High school experiences/leadership pretests. Of note is that the high school experiences and leadership pretests block added the greatest amount of predictive value of any. This ranged from 29.1% to 32.6% by institution type. From a practical perspective, this finding reinforces the importance not only of high school experiences but also that values, self-confidence, and efficacy are essential in leadership development of college students as they explained a great deal of the outcome measure. This is congruent with the work of Dugan and Komives (2007), who found a variety of influences, including precollege experiences, to influence leadership capacity. Dugan and Komives (2010), who utilized several of the pretest measures and the seven Cs of the Social Change Model as outcome measures, found this block to add between 12% and 17% of explanatory value to the model, depending on which C was the outcome variable.

In the final models, involvement in high school activities was a statistically significant negative predictor across all institution types, as was high school involvement in community organizations at master's and research (very high) institutions. This was surprising since these variables were positively correlated with the dependent variable and the same collegiate level involvement in these activities was a positive predictor. One explanation is that students who were very involved in high school decided to participate less in these sorts of activities in college because of burn out associated with over involvement. It is also possible that students who did not have positive experiences in these activities in high school may have decided to not participate in college. Also, it was surprising that precollege leadership training had no predictive value on the outcome variable. However, this is congruent with the findings of Haber and Komives (2009), who found that the leadership

training and education variables did not have influence on Social Change Model outcomes. These researchers, too, noted that this was a surprising result.

It was not surprising that the SRLS was a positive significant predictor, since it has similar measures of the outcome variable. What was interesting was that it was even a strong positive predictor at associate's institutions, where very few variables were found to be significant predictors. Next to the SRLS pretest measure, the cognitive skills and leadership efficacy measures were the highest significant positive predictors. These questions were related to student confidence in being successful in college academic life and leadership abilities. Research would support the finding that these items related to confidence would be positive predictors. For example, Kolb (1999) found that self-confidence was a statistically significant predictor of leadership emergence. In addition, Dugan and Komives (2010) found self-efficacy to explain between 8% and 12% of the variance in Social Change Model measures.

It was unexpected that the efficacy measures were not statistically significant variables at associate's institutions, when they were at all other institution types. Future research should study whether differences exist in the mean values of these variables among institution types, given that in most institution types, these measures are positive predictors. If these differences do exist between institution types, measures could be utilized to help students understand their potential.

Academic background. As mentioned earlier, being a transfer student had a positive statistically significant predictive value at all institution types, except associate's institutions. This is an important finding given that between 15% and 25% of students at any institution type started college at another institution. One possible explanation for this is that students

who have transferred have greater self-understanding and, because they have experienced a number of environmental types, find it important to improve and be committed to their communities. When you consider some of the Cs within the Social Change Model, such as consciousness of self, common purpose, commitment, collaboration, and change, this finding seems to make sense. For example, the SRLS measures change as "one's comfort with change" (Multi-Institutional Study of Leadership, 2009, p. 1). This would seem to be a strength of those who transfer and, therefore, they would have a higher value in this particular scale. Administrators and faculty at associate's and master's institutions need to recognize the unique contributions of transfer students, since they have the greatest number of transfer students. It is particularly important because it is at associate's institutions where this variable is not a significant predictor of socially responsible leadership.

Grade point average was a statistically significant positive predictor at all institution types, except associate's institutions. It may be that students who find academic success are also more likely to be involved in activities that promote socially responsible leadership, such as engaging in sociocultural conversations and community service. In addition, these students may be able to more effectively apply concepts learned in coursework to their own lives and behaviors. As several of the measures in the SRLS relate to confidence (e.g., consciousness of self), and because confidence in higher education is often related to GPA, it would seem logical that these two measures are associated with one another. This anomaly with regard to GPA and socially responsible leadership at associate's institutions may be related to the confidence issue mentioned earlier.

Academic major was excluded from associate's institutions as it did not seem to have the same amount of applicability given the focus of these institutions. Overall, it was found

that academic major did not have much practical predictive value related to socially responsible leadership at other institutions. Although majoring in the physical sciences emerged statistically significant within various models, the only significant finding in final models was that it was a negative predictor at baccalaureate and master's institutions only. Social sciences had a positive predictive value at research (very high) institutions. Given the focus of both of these majors, the findings are not surprising. For example, the Social Change Model group values of collaboration, common purpose, and controversy with civility would all seem relevant to the social sciences major, as would citizenship. It had been thought that education would also emerge as a positive predictor given the focus of this discipline in creating positive social change through educating others. This perhaps indicates that education programs are not including ideas related to social change within the curriculum.

It was surprising that class year did not remain a statistically significant positive predictor, as it emerged as a positive predictor in several of the models, with more years of education predicting a higher socially responsible leadership value. However, it was not significant in any of the final models. It had been thought that the more exposure a student had to higher education, an environment rich in experiences related to the Social Change Model seven Cs, the higher the measure would be on this scale. One possible explanation is that other environmental variables are already accounting for some of the same benefit within the college environment.

Environmental variables

Institutional characteristics. It had been thought that institutional characteristics would have an influence on the socially responsible leadership development of students

attending these institutions. Astin (1993) found public and private institutions to have differing effects on leadership outcomes. In this study, selectivity was omitted given the homogenous nature of the sample, and religious affiliation was dropped for issues of multicollinearity with the public-private control variable. In addition, institutional characteristics were not included in the associate's institution regression given the homogenous nature of these institutions.

The researcher was uncertain of the effect institutional size would have on socially responsible leadership, but given Astin's (1993) research, it was thought that smaller institutions would have more positive outcomes. In some aspects of the Social Change Model, such as consciousness of self, congruence, and commitment, it was thought that students at smaller institutions would have more individualized attention and would have more opportunities for meaningful reflection. However, as with other aspects of the Social Change Model, such as controversy with civility, it was thought that larger, more diverse institutions would offer more opportunity for diverse interactions. Institutional size did not remain a significant predictor in any of the models.

It was thought that being a private institution would have a positive predictive value on socially responsible leadership given the association between this variable and religious affiliation. To the contrary, being a private institution was a negative predictor at baccalaureate, master's and research (very high) institutions and insignificant at doctoral/research institutions. At most, this block added 0.1% of explanatory value and was close to 0% for baccalaureate, doctoral/research, and research (very high) institutions, suggesting that this variable was not very important in socially responsible leadership outcomes. This is congruent with the research of Dugan and Komives, (2010) who found

that institutional characteristics added no explanatory value related to individual measures of the Social Change Model.

College experiences. Next to the high school experience/leadership pretests block, the college experiences block added the greatest predictive value to the regressions. This ranged from 9.3% at master's and doctoral/research institutions to 12.4% at associate's institutions. This was not surprising given the amount of research that has focused on the impact that college can have on student outcomes. Several researchers (Dugan, 2006; Dugan & Komives, 2007; Haber & Komives, 2009) have found college involvement to influence socially responsible leadership capacity.

Even with the amount of predictive value of this block, it is interesting to note that only scales related to sociocultural conversations and social change behaviors were statistically significant positive predictors across all institution types. This finding of sociocultural conversations as important to leadership capacity development is congruent with findings by Dugan and Komives (2007) and Dugan and Komives (2010). It is also logical that the social change behaviors would have a positive influence on the outcome measure. This scale was composed of observed variables related to frequency of certain behaviors, such as "communicated with campus or community leaders about a pressing concern" or "took part in a protest, rally, march or demonstration." The frequency of these behaviors would promote the various Cs within the Social Change Model. That these variables promote social change leadership indicates faculty and staff at institutions should work to foster these conversations and involvement.

Dugan (2006) found that community service influenced leadership development, and Dugan and Komives (2010) found it to be a significant predictor for all but two measures of

the Social Change Model. Congruent with past research, community service was a positive predictor at all but associate's institutions. This has obvious practical implications as institutions of higher education ought to encourage students to be involved in community service. It would be interesting to study how community service in high school differs from community service in college given the differing predictive values of these variables on the outcome measure.

It was surprising that being involved in leadership activities stayed significant only at research (very high) institutions when it would seem this involvement would allow development in several measures of the Social Change Model. However, Haber and Komives (2009) support this finding as they found that leadership training and education programs did not have significant influence on outcome measures of the Social Change Model. Dugan and Komives (2010) found that short and moderate leadership training was a positive predictor of a number of the measures but that long-duration training was a negative predictor for several individual measures. In this study, the measure was a composite variable related to frequency of involvement in activities, such as leadership conferences or leadership retreats. It is possible that as this composite variable seemed to measure for breadth as opposed to depth, students who were too involved were not able to take advantage of other opportunities that would enhance their development of socially responsible leadership. Perhaps overinvolved students do not have the time to effectively reflect and integrate the value of these experiences. This finding warrants further research.

Active member frequency on campus was a positive predictor at baccalaureate, master's, and research (very high) institutions, and participation in off-campus activities was a positive predictor at master's, doctoral/research, and research (very high) institutions.

Future research should focus on how the geographical setting of these institutions (rural/urban) and campus program offerings may influence these variables. For example, if an institution is set within an urban area, involvement off campus may prompt development in certain aspects of the Social Change Model. Haber and Komives (2009) suggested that this involvement may be more significant for women than for men, but within the current study, no differentiation between men and women was made.

That holding a position of leadership did not remain significant either on or off campus seemed contrary to past research of Dugan and Komives (2007) who had found holding a leadership role to have positive outcomes on all measures of the Social Change Model. Haber and Komives (2009) found that holding a formal leadership position was a positive predictor of consciousness of self for women. That no significant relationship was found in the final model could again be because men were included in these regressions. At all types of institutions, however, these variables were originally positively correlated with the dependent variable. Therefore, it seems that the influence of other variables, perhaps measuring a similar concept (like active member frequency), may have decreased the significance of this variable.

Mentoring experiences. Given the large amount of research that has linked mentoring to leadership development (Blass & Ferris, 2007; Campbell et al., in press; Collins-Shapiro, 2006; Dugan & Komives, 2007; Gleason, 2009; Jabaji et al., 2008; Komives et al., 2006; Mavrinac, 2005; Scandura & Williams, 2004; Solansky, 2010; Sosik & Godshalk, 2000; Sosik et al., 2004), it had been hypothesized that the frequency of mentoring by various individuals would be a positive predictor of socially responsible leadership. However, none of the variables related to mentor frequency remained significant at

associate's institutions. Faculty mentor frequency remained a statistically significant positive predictor at all other institution types. This was not surprising given the integral role that research has found these individuals play in students' lives (Umbach & Wawrzynski, 2005). This was also congruent with the findings of Dugan and Komives (2010). Staff mentor frequency was significant at master's institutions, while community member mentor frequency was statistically significant at research (very high) institutions, and parent mentor frequency was significant at baccalaureate institutions. Mentor frequency by other students did not have significant predictive value at any type of institution in the final model yet was positively correlated to the outcome variables.

These findings are contrary to those of Thompson (2006), who in his study of upper class students at a small liberal arts college, found that interactions with faculty members, staff members, and peers were the strongest factors related to student understanding of leadership. What is possible is that in these mentoring interactions, students may be discussing other topics not directly related to socially responsible leadership. For example, many mentoring programs in higher education are focused on vocational discernment or on the academic transition. It is also possible that it is not the frequency but the depth of mentoring that influences the dependent variable. Future research should focus on how frequent the interaction is with these various mentors to better understand if it is simply the amount of mentoring going on or if it is the topics related to mentoring that are causing this small predictive value. Overall, these measures of mentoring frequency contributed little predictive value to the model, between 0.8% and 1.7%, depending on type of institution.

Most significant mentor characteristics. Of most importance to this study, it had been thought that demographic characteristics and role of a student's reported most

significant mentor could be predictive of the outcome measure, as different types of individuals may value social responsibility more than others. For example, being Asian American/Asian tended to have a negative predictive value on socially responsible leadership. Surprisingly, very little predictive value was seen in the demographic background of the most significant mentor.

As compared to having a faculty member most significant mentor, having a staff member as the most significant mentor was a positive predictor at master's and doctoral/research institutions, most likely because of the student affairs training that many of these individuals have. Having an African American/Black or Asian American/Asian most significant mentor was a negative predictor. The finding related to having an African American/Black most significant mentor was surprising as being African American/Black was positively correlated with the dependent variable. The finding related to Asian American/Asian most significant mentor was not surprising since it had been found that being Asian American/Asian was a negative predictor of the dependent variable.

With the exception of associate's institutions, where mentoring for leadership empowerment was not a statistically significant predictor of socially responsible leadership, mentoring for personal development and mentoring for leadership empowerment were positive predictors at all institution types. Given the very explicit focus on leadership in the mentoring for leadership empowerment composite scale, it had been thought that this would be the stronger predictor of socially responsible leadership. Mentoring for personal development was the composite variable constructed of frequency of conversations that were broad in scope and related to psychosocial development. However, at all institution types,

mentoring for personal development was a stronger predictor than mentoring for leadership empowerment, indicating the very important role of psychosocial support in these settings.

This block provided only between 3.6% and 4.8% of the predictive value of the outcome measure. Within the model of Campbell et al. (in press), a similar block contributed approximately 8% of explanatory value, but only included mentoring for personal development, mentoring for leadership empowerment, and mentor role. Although the model in the current study contributed slightly less explanatory value, it still provides a great deal of insight into what truly matters in meaningful mentoring. Campbell et al. (*in press*) found the type of mentor mattered. This study found that type of mentor seemed to matter less than the types of conversations that were taking place with mentors. It had been thought that mentoring for leadership empowerment would provide the strongest predictive value, yet the broader mentoring conversations involved in mentoring for personal development had the greatest predictive value, which was congruent with Campbell et al. (*in press*). This is very important in considering implications for practice as it is in these broader conversations regarding things such as "living up to my potential" and "mentoring others" that mentors can have the greatest influence on socially responsible leadership outcomes of students. Campbell et al. (*in press*) compared this measure to "the psychosocial mentoring orientation" (p.23).

Reflections on Theoretical Framework

This study was guided by a theoretical framework based on the work of the Social Change Model (Higher Education Research Institute, 1996), Kram's (1985) functions of mentoring, and research related to institutional type differences. It had been hypothesized that if environmental variables between Carnegie Classifications did differ, these

environments would have unique influences on and differential outcomes related to mentoring for personal development, mentoring for leadership empowerment and the outcome measure of socially responsible leadership. This study found that very little difference did exist in terms of unique environmental effects.

Although this study did find some unique effects of input and environmental factors, very little difference was found in overall explanatory value at these institutions, or within the larger blocks (such as college involvement). In terms of demographic differences between institution types, most differences of student background were between associate's institutions and all other institution types. However, overall a similar percentage of socially responsible leadership was explained by the variables utilized in that model in comparison to other institutions. It is important to note that mentoring for leadership empowerment was not a significant predictor of socially responsible leadership at associate's institutions while it was at all other institution types.

Differences were found in the pretest measure of socially responsible leadership, mentoring for personal development and mentoring for leadership empowerment, and the outcome measure of socially responsible leadership. However, these differences are so minute they have very little practical significance. The findings of the regressions and of the ANOVAs would indicate that institutional type had very little effect on the environmental and outcome measure of socially responsible leadership.

What this study did find is that Kram's (1985) theory of mentoring functions is of great value in understanding how mentoring influences leadership development in higher education settings. Kram (1985) had hypothesized that mentoring can function in providing psychosocial and career support. At all institution types except associate's, both mentoring

for personal development and mentoring for leadership empowerment were statistically significant predictors of the outcome measure, indicating that mentoring does influence socially responsible leadership development. It was found that mentoring for personal development was a stronger predictor than mentoring for leadership empowerment. This finding would suggest that related to Kram's (1985) theory, the psychosocial conversations and support are the most beneficial conversations in terms of supporting students in the development of socially responsible leadership.

<div align="center">**Implications for Research, Policy, and Practice**</div>

Research

This study provides the foundation for additional research related to spirituality and socially responsible leadership development. Further research is warranted regarding why doctoral/research institutions had higher mean values on spirituality measures than baccalaureate, master's, and research (very high) institutions and had a higher mean score of the omnibus SRLS variable than master's institutions. This research could focus on the characteristics of the institutions within this particular group to see if trends in mission or educational practice can be found. If certain practices are being utilized at these institutions, practitioners at other institution types may be able to emulate these practices.

Overall, given the homogenous racial background of this sample, future research should focus on analysis of a more racially diverse sample. Although the 2009 MSL did include students from four minority serving institutions, the majority of the institutions represented were predominantly white institutions. Therefore, additional minority serving institutions should be encouraged to participate in the survey which would provide a more diverse sample for analysis. This would allow for findings that have greater applicability

across the higher education landscape, as institutions work to assist students of all backgrounds in developing socially responsible leadership capacity.

As mentoring was found to be a positive predictor of socially responsible leadership, it is important to understand whether students select mentors because of like characteristics. For example, whether African American/Black students select African American/Black mentors. Findings of this study suggested that percentage of most significant mentors of various demographics tended to parallel respondent demographics, but more in-depth research is warranted. This information would allow practitioners to understand how they might best help students connect with mentors they relate to and also would have implications for hiring practices within higher education.

Additional research ought to focus on why being Asian American/Asian and being an international student were negative predictors of socially responsible leadership. Research should focus on the individual measures of the Social Change Model to determine if perhaps cultural differences influence some of the Cs within the Social Change Model more than others. It may be that certain cultural norms influence some of the Cs, particularly related to group values. This research would allow practitioners to understand how they might best assist students from different backgrounds in understanding the values of the Social Change Model.

Likewise, future research ought to focus on the various Cs of the Social Change Model as outcome variables with regard to institution type differences, as opposed to the overall omnibus SLRS variable, as this may illuminate differences in these measures. For example, it may be that controversy with civility may have a higher mean score at research (very high) institutions as opposed to master's institutions due to a higher degree of diversity

and the nature of that particular measure. This study did not measure the various scales related to the individual Cs.

Given the focus of the Social Change Model and that the Carnegie Classification now has a Community Engagement Elective Classification (Carnegie Classification for the Advancement of Teaching, 2011), future research should focus on how institutions within this particular classification have different outcomes related to socially responsible leadership. This could provide credibility to this new designation. It would also allow researchers to focus on practices that allow students to develop these competencies. For example, one might study whether community service has a different effect on student outcomes at designated institutions as opposed to institutions that do not have this designation.

Study of the relationship of high school involvement in clubs and organizations to socially responsible leadership is warranted since the negative predictive value was a surprising finding. It would be important to understand if students were not involved in college after being very involved in high school, and therefore, did not reap the benefits that others did related to college involvement. This research would provide guidance to practitioners wanting to utilize the momentum of high school involvement to continue fostering an understanding of socially responsible leadership in these students. It would be worth investigating differences in these experiences in high school and collegiate programs.

Future research into the differences in leadership efficacy and cognitive skills is important given that these were strong positive predictors at all institution types, with the exception of associate's institutions. This research should focus on whether lower levels of these measures are found at associate's institutions or whether it is just that these measures

had less influence at these institution types. If students come in with a lower level of confidence, measures could be incorporated to help them understand their potential in these areas.

Finally, given the influence that mentoring for personal development had on outcomes related to socially responsible leadership, additional research should focus on how institutions can promote these types of interaction. For example, it is important to understand what sorts of contexts are conducive to these sorts of conversations. This would allow for institutions to foster these types of interactions and provide resources for mentors in these settings.

Policy

As leadership is now seen as teachable and learnable (Daloz Parks, 2005; Kouzes & Posner, 2007; Rosenbach & Taylor, 1998; Zimmerman-Oster & Burkhardt, 2000), and because the need for effective leadership has never been greater (Bennis, 2007), policy must be established to assist students in the development of socially responsible leadership. This study provides some insight as to how this may be accomplished.

First, additional funding for programs that are found to be positive predictors of socially responsible leadership is needed. For example, programs that promote sociocultural conversations, social change behaviors, and community service have been found to be positive predictors, and therefore, should be supported administratively and financially. Administrators should also work to promote the involvement of Asian American/Asian students.

Being a transfer student was a positive predictor of socially responsible leadership; institutions ought to work together to make these transitions easier for students so that they

do not choose to exit higher education instead of transferring to another institution, so they can develop these skills and encourage others to do so as well. This collaboration may come in the form of official transfer articulation agreements between institutions or in resource sharing. It is important that institutions find methods through which to share with transfer students the value of their experiences.

International students who stay in the United States after graduation can enhance the leadership landscape from the unique perspectives they bring. Those who return home act as ambassadors and also work to improve social conditions in their own countries. Regardless of which path a student may take, it is important to engage these students in the development of socially responsible leadership, especially as numerous researchers (Allen et al., 1998; Barkema et al., 2001; Bennis, 2007; Daloz Parks, 2005; Kezar, 2009; Lichtenstein et al., 2006; Longo & Gibson, 2011; Rost & Barker, 2000; Sandmann & Vandenberg, 1995) have emphasized the essential role of understanding complexity in a global society. Therefore, policy makers should align resources with practices that work to integrate international students so that they can share their unique perspectives and develop skills in these areas themselves. This is important since this study found that being an international student was a negative predictor of socially responsible leadership.

As leadership efficacy and the cognitive pretests were found to be positive predictors of socially responsible leadership, it is important that policy makers work with secondary educators to instill this confidence in high school students. This could be done through programming that helps students understand the postsecondary education system and also how to make the most of their collegiate experience, regardless of where that is. Programming that exposes students to the collegiate environment could help them see how

they are capable of success in these types of environments. This may lead students to be more involved in activities associated with leadership outcomes. In addition, this exposure may help students see how their high school involvement in organizations and community service is applicable to their college involvement and may potentially reduce the negative predictive value of these experiences to socially responsible leadership.

It would seem important for policy makers to reinforce to those involved in curriculum development the importance of socially responsible leadership in all disciplines. Although very few of the disciplines remained significant predictors in the final model, it was evident through correlations that some disciplines were negatively associated with the outcome measure, while others were positively correlated. Even if a student is majoring in physical sciences, he or she must understand how to make a contribution in terms of bettering communities. Therefore, curriculum must be established that is aligned with this message and that strengthens these skills and values.

Finally, as it was found that mentoring for personal development and mentoring for leadership empowerment did have explanatory value related to socially responsible leadership, policies emphasizing the value of meaningful interaction with students must be established. For example, at all institution types, faculty tenure and promotion should be aligned with the value of advising undergraduate students. This same practice must be emulated in the areas of staff reward systems and development. Staff should be given opportunities to continue developing skills that will help them interact in meaningful ways with students. Funding must be provided to assist in this development.

Practice

This study also offers insight into the improvement of practice. The first practical implication is to get more males, Asian American/Asians, and international students involved in the activities that are associated with the development of socially responsible leadership activities. This could be as simple as working to establish marketing practices that are more inclusive and attractive to a diverse audience. It could also be a more complex approach related to creating a more welcoming ethos through additional training of faculty, staff, and students working with these programs. Regardless of the approach, this would be beneficial in promoting the value of socially responsible leadership to these groups. Although important at all institution types, it is particularly important at associate's institutions, which were found to have the highest percentage of international students.

Of the utmost importance is working to get all students involved in some of the programming found to have positive predictive value. This would include programming related to sociocultural conversations, community service, and social change behaviors. Faculty members should work to incorporate this content into their classes as the curriculum tends to involve a broader group of students that programming within the cocurriculum may not. One practice that would lend itself well to this integration is service-learning. It is particularly important that these practices become embedded in disciplines, such as physical sciences, that in this study were negatively correlated to socially responsible leadership.

If students do transfer to a new institution type, practitioners should work to capitalize on the strengths of transfer students as they bring experience valuable to socially responsible leadership. In addition, since it was found that student mentoring had little influence on socially responsible leadership, practices should be developed that allow students, especially

transfer students, to share their values and experiences with other students to increase the value of these relationships. Particular focus should be placed on developing practices that capitalize on transfer students' experiences at associate's and master's institutions, where the percentage of transfer students was found to be the highest.

One of the most important implications for practice emerges from the finding that the type of mentor appeared to not be nearly as important as the sorts of conversations that mentors of any type are having with those they are mentoring. This would suggest that individuals in all roles at higher education institutions should be encouraged to have meaningful interactions with students and understand the value they have in helping students develop in terms of socially responsible leadership. In addition, all involved with these institutions should be encouraged to understand how conversations related to personal development influence students' leadership capacities and not only those conversations that relate directly to leadership.

Conclusions

Given the important role that higher education institutions play in the development of leaders who create positive change, the researcher sought to understand how institution type influences mentoring and socially responsible leadership of students. The researcher began this process utilizing Campbell at al.'s (*in press*) study of the influence of mentoring for leadership empowerment and mentoring for personal development. Astin's (1993) I-E-O conceptual model was utilized in the development of the sequential hierarchical regression analyses conducted to understand these relationships. In this study, the researcher sought to further the work of Campbell et al (*in press*) by utilizing additional input and environmental variables in the regression models, utilizing cross tabulations and ANOVA to understand the

differences that exist in terms of input and environmental variables by Carnegie Classification, and studying the unique effects of these variables on socially responsible leadership by institution type.

It had been hypothesized that differences would exist between institution types, represented by Carnegie Classification. However, the study found very little difference in type of mentoring in institutions of different Carnegie Classification. Little practical difference was found in the influence that the input and environmental variables have on socially responsible leadership or in measures of socially responsible leadership. Given this finding, it is important to remember criticisms of the Carnegie Classification such as those by McCormick and Zhao (2005). As Carnegie Classification represents institutional focus in terms of research and degrees granted, it would be interesting to study how mentoring and leadership function differently utilizing other grouping variables.

Though only trivial differences were found between institution types, the contribution of this study can still be found in its implications in terms of future research, policy development and practice. The study confirmed past research in the areas of socially responsible leadership development and the relationship between mentoring and leadership development. In addition, as the regressions each accounted for approximately half of the variance in socially responsible leadership, the study provides evidence of the various input and environmental variables that do meaningfully influence socially responsible leadership.

Although practically significant differences did not exist related to mentoring for personal development and mentoring for leadership empowerment, these types of mentoring were found to support socially responsible leadership. Perhaps the most important finding is how predictive mentoring for personal development, which reflects Kram's (1985)

psychosocial function of mentoring, was on the development of socially responsible leadership. This finding reinforces the importance of meaningful conversations related to student potential by all individuals working in post-secondary education. It is likely that practitioners would think that conversations related explicitly to leadership would be the most important in assisting students in developing their leadership. However, it is the broader conversations that were found to be most beneficial. Since the type of significant mentor was not found to be important, faculty, student affairs professionals, employers, and other students should all be reminded of their importance in influencing others in understanding the value of meaningful conversation.

This study provides additional evidence of the influence of various input and environmental variables in socially responsible leadership development. For example, leadership efficacy and efficacy of cognitive skills were found to be very significant input predictors of socially responsible leadership. Therefore, elementary and high school educators must work to increase the esteem of students before they come to college. Environmental variables such as engaging in community service and engaging in social change behaviors should be supported as they were found to positively predict socially responsible leadership development.

If we are to successfully meet the challenges of an increasingly complex world, it is essential that additional studies like this explore the various factors that influence the leadership development of students. However, research alone will not serve to improve leadership development of students. Findings of this and other studies must be translated into meaningful policy and practice. Resources must be committed to programming efforts, such as community service, that have been found to promote student development.

Practitioners must take the time to reflect with students and engage them in conversations, such as sociocultural conversations, that have been found to positively influence socially responsible leadership. Finally, all members of the campus community must recognize their value in the lives of students and engage in meaningful conversations that support the psychosocial needs of these students. It is through the commitment of all that we can nurture students capable of creating social change for a better future.

APPENDIX A: LITERATURE MAP

Leadership & Leadership Education

Crisis of Leadership
Bennis (2007)
Allen, Stelzner & Wielkiewicz (1998)
Barkema, Baum & Mannix (2001)
Burns (1995)
Daloz Parks (2005)
Kezar (2009)
Lichtenstein, et al. (2006)
Longo & Gibson (2011)
Rosenthal, Moore, Montoya & Maruskin (2009)
Rost & Barker (2000)
Sandmann & Vandenberg (1995)
Uhl-Bien, Marion & McKelvey (2007)

Complexity of Society
Allen, Stelzner & Wielkiewicz (1998)
Barkema, Baum & Mannix (2001)
Bennis (2007)
Daloz Parks (2005)
Kezar (2009)
Lichtenstein, et al. (2006)
Longo & Gibson (2011)
Rost & Barker (2000)
Sandmann & Vandenberg (1995)
Uhl-Bien et al. (2007)

Leadership Paradigms

Adaptive Leadership
Daloz Parks (2005)
Kezar (2009)
Kezar & Carducci (2007)
Lichtenstein et al. (2006)
Uhl-Bien, Marion & McKelvey (2007)

Transformational Leadership
Sosik, Godshalk & Yammarino (2004)
Sosik & Godshak (2000)

Leadership Practices
Kouzes & Posner (2007)
Posner (2009)

Calls to Higher Ed

Involvement in Leadership Ed.
Astin & Astin (2000)
Daloz Parks (2005)
Dugan (2006)

Current Leadership Ed. Environment
Dugan & Komives (2007)
Brunghardt, Greenleaf, Brunghardt & Arensdorg (2006)
Longo & Gibson (2011)

Change in Leadership Thought
Wren & Swatez (1995)
Longo & Gibson (2011)

Teachable/Learn able
Daloz Parks (2005)
Kouzes & Posner (2007)
Rosenbach & Taylor (1998)
Zimmerman-Oster & Burkhardt (1999)

Post-industrial Terminology
Cilente (2009)
Day (2001)
Kezar (2009)
Kezar & Carducci (2007)
Lichtenstein et al (2006)
Roberts (2003)
Uhl-Bien, Marion & McKelvey (2007)

Expansion of Leadership Education
Mangan (2002)
Roberts (2003)
Dugan, Komives & Segar (2008)

Outcomes of Leadership Ed.

Socially Responsible Leadership
Dugan (2006)
Dugan & Komives (2007)
Dugan et al. (2008)

Other Valuable Outcomes
Bialek & Lloyd (1998)
Posner (2009)
Zimmerman-Oster & Burkhardt (2000)
Smart, Ethington, Riggs & Thompson (2002)

Mentoring & Leadership

Mentoring and Leadership

Differences
Sosik & Godshak (2000)

Transformational Leadership
Hicks (2011)
Marvinac (2005)
Scandura & Williams (2004)
Sosik & Godshak (2000)
Sosik, Godshalk & Yammarino (2004)

Leadership Identity Development
Collins-Shapiro (2006)
Komives et al. (2006)

Socially Responsible Leadership
Campbell, Smith, Dugan & Komives (in press)
Dugan & Komives (2007)
Jabaji, Slife, Komives & Dugan (2008)

Leadership Competency
Kouzes & Posner (2007)
Kunich & Lester (1999)
Smith (2009)
Zachary & Fischler (2010)

Support Mechanism
Gibson, Tesone & Buchalski (2000)
Gleason (2009)
Maxwell (2008)
Solansky (2010)

Precollege Char & College Experiences
Arminio et al. (2000)
Dugan (2006)
Dugan & Komives (2007)
Dugan, Komives & Segar (2008)
Haber & Komives (2009)
Thompson (2006)

Institutional Type/Outcomes

Institution Differences

Use of Good Practices
Chickering & Gamson (1987, 1991)
Pascarella, Cruce, Wolniak & Blaich (2004)
Salisbury (2010)
Seifert, Drummond & Pascarella (2006)
Seifert, Pascarella, Goodman & Umbach & Kuh (2006)

Outcomes
Dugan & Komives (2010)
Kezar & Kinzie (2006)
McCormick, Pike, Kuh & Chen (2009)
Pike, Kuh & Gonyea (2003)

Selectivity & Quality
Kuh & Pascarella (2004)
Pascarella et al. (2004)

Carnegie Classification
McCormick & Zhao (2005)

Updates to Carnegie Classification
Carnegie Foundation for the Advancement of Teaching (2011)
Jaschick (2006)
June (2006)
McCormick & Zhao (2005)

Challenges
Coccum (2001)
McCormick & Zhao (2005)

Mentoring

Contexts of Mentoring

Within Higher Ed.
Brawer (1996)
Collins-Shapiro (2006)
Daloz Parks (2000)
Erkut & Mokros (1984)
Haring (1999)
Hicks (2011)
Smith (2009)
Valadez & Duran (1991)

Other Contexts
Blass & Ferris (2007)
Eby et al (2008)
Judge (2008)
Kalbfleisch (2000)
Kammeyer-Mueller & McAlearney (2005)

Importance of Support Context
O'Neill (2005)

Types of Mentoring

Formal & Informal
Allen et al (2006)
Baugh & Fagenson-Eland (2007)
Campbell (2007)
Egan & Song (2008)
Gibson et al. (2000)
Parise & Forret (2008)
Ragins & Cotton (1999)

Peer
Bryant (2005)
Bryant & Terborg (2008)
Mavrinac (2005)
McManus & Russell (2007)
Smith (2009)

Benefits of Mentoring

Individual
Campbell et al (in press)
Collins-Shapiro (2006)
Daloz Parks (2000 & 2005)
Dougherty & Dreher (2007)
Dugan, et al. (2008)
Eby et al (2008)
Egan & Song (2008)
Gleason (2009)
Hargreaves & Fullan (2000)
Jabaji, Slife, Komives & Dugan (2008)
Komives, Mainella, Longerbeam, Osteen & Owen (2006)
O'Neill (2005)
Scandura & Williams (2004)
Sosik & Godshak (2000)
Hale (1996)
O'Neill (2005)
Valdez & Duran (1991)

Organization
Brawer (1996)
Bryant (2005)
Corporate Leadership Council (2005)
Hale (1996)
Haring (1999)
O'Neill (2005)

Definition & History of Mentoring
Collins-Shapiro (2006)
Daloz Parks (2000 & 2008)
Eby, Rhodes & Allen (2007)
Gibson, Tesone & Buchalski (2000)
Healy & Welchert (1990)
Kartje (1996)
Maxwell (2008)
Ragins & Kram (2007)
Staddard & Tamszy (2003)
Young & Perrewe (2004)
Zacahary (2005)

Stages of Mentoring
Collins-Shapiro (2006)
Kram (1983)
Zachary (2000)

Risks of Mentoring
Gibson et al (2000)
Hicks (2011)

Mentoring Environments
Daloz Parks (2000 & 2008)
Zachary (2005)

Characteristics of Mentoring
Daloz Parks (2000 & 2008)
Darwin (2004)
Jacobi (1991)
Young & Perrewe (2004)
Zachary (2005)

Theoretical Framework

Social Change Model of Leadership
Campbell et al. (in press)
Cleveland State University (no date)
Cilente (2009)
Higher Education Research Institute (1996)

Mentoring Theory
Campbell et al. (in press)
Kram (1985)
Johnson, Rose & Schlosser (2007)

Institutional Type Differences
McCormick et al. (2009)
Pascarella et al. (2004)
Seifert et al. (2006 & 2010)
Umbach & Kuh (2006)

APPENDIX B:

2009 FULL DISTRIBUTION OF INSTITUTIONS AND ENROLLMENTS

Category	Number of Institutions	% of Institutions	Total Enrollment	% of Enrollment	Ave Enrollment
Assoc/Pub-R-S: Associate's-- Public Rural-serving Small	137	3.0 %	167,460	0.8 %	1,222
Assoc/Pub-R-M: Associate's-- Public Rural-serving Medium	299	6.5 %	1,101,615	5.3 %	3,684
Assoc/Pub-R-L: Associate's-- Public Rural-serving Large	134	2.9 %	1,198,256	5.8 %	8,942
Assoc/Pub-S-SC: Associate's-- Public Suburban-serving Single Campus	109	2.4 %	997,308	4.8 %	9,150
Assoc/Pub-S-MC: Associate's-- Public Suburban-serving Multicampus	104	2.2 %	1,302,702	6.3 %	12,526
Assoc/Pub-U-SC: Associate's-- Public Urban-serving Single Campus	32	0.7 %	342,215	1.7 %	10,694
Assoc/Pub-U-MC: Associate's-- Public Urban-serving Multicampus	137	3.0 %	1,995,508	9.6 %	14,566
Assoc/Pub-Spec: Associate's-- Public Special Use	12	0.3 %	31,784	0.2 %	2,649
Assoc/PrivNFP: Associate's-- Private Not-for-profit	94	2.0 %	42,152	0.2 %	448
Assoc/PrivFP: Associate's-- Private For-profit	652	14.1 %	410,684	2.0 %	630
Assoc/Pub2in4: Associate's-- Public 2-year colleges under 4-year universities	48	1.0 %	129,064	0.6 %	2,689
Assoc/Pub4: Associate's-- Public 4-year Primarily Associate's	42	0.9 %	359,412	1.7 %	8,557
Assoc/PrivNFP4: Associate's-- Private Not-for-profit 4-year Primarily Associate's	20	0.4 %	13,824	0.1 %	691
Assoc/PrivFP4: Associate's-- Private For-profit 4-year Primarily Associate's	100	2.2 %	93,741	0.5 %	937
RU/VH: Research Universities (very high research activity)	108	2.3 %	2,809,581	13.6 %	26,015
RU/H: Research Universities (high research activity)	98	2.1 %	1,739,837	8.4 %	17,753
DRU: Doctoral/Research Universities	89	1.9 %	1,226,204	5.9 %	13,778

Category	Number of Institutions	% of Institutions	Total Enrollment	% of Enrollment	Ave Enrollment
Master's L: Master's Colleges and Universities (larger programs)	414	8.9 %	3,508,103	16.9 %	8,474
Master's M: Master's Colleges and Universities (medium programs)	186	4.0 %	787,289	3.8 %	4,233
Master's S: Master's Colleges and Universities (smaller programs)	128	2.8 %	370,361	1.8 %	2,893
Bac/A&S: Baccalaureate Colleges--Arts & Sciences	270	5.8 %	458,753	2.2 %	1,699
Bac/Diverse: Baccalaureate Colleges--Diverse Fields	391	8.4 %	664,344	3.2 %	1,699
Bac/Assoc: Baccalaureate/Associate's Colleges	147	3.2 %	298,300	1.4 %	2,029
Spec/Faith: Special Focus Institutions--Theological seminaries, Bible colleges, and other faith-related institutions	302	6.5 %	99,479	0.5 %	329
Spec/Med: Special Focus Institutions--Medical schools and medical centers	53	1.1 %	106,865	0.5 %	2,016
Spec/Health: Special Focus Institutions--Other health professions schools	165	3.6 %	88,039	0.4 %	534
Spec/Engg: Special Focus Institutions--Schools of engineering	8	0.2 %	18,611	0.1 %	2,326
Spec/Tech: Special Focus Institutions--Other technology-related schools	57	1.2 %	56,442	0.3 %	990
Spec/Bus: Special Focus Institutions--Schools of business and management	78	1.7 %	74,501	0.4 %	955
Spec/Arts: Special Focus Institutions--Schools of art, music, and design	128	2.8 %	172,881	0.8 %	1,351
Spec/Law: Special Focus Institutions--Schools of law	38	0.8 %	30,834	0.1 %	811
Spec/Other: Special Focus Institutions--Other special-focus institutions	22	0.5 %	11,751	0.1 %	534
Tribal: Tribal Colleges	32	0.7 %	19,686	0.1 %	615
All Institutions	4,634	100.0 %	20,727,586	100.0 %	4,473

Note. From http://classifications.carnegiefoundation.org which indicated source: 2010 Carnegie Classification; National Center for Educations Statistics, IPEDS Fall Enrollment (2009).

APPENDIX C: IRB APPROVAL

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Resear
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4566
FAX 515 294-4267

Date: 8/10/2011

To: Michael Carl Gleason
603 7th Ave NW
Waverly, IA 50677

CC: Dr. Frankie Santos Laanan
N225A Lagomarcino

From: Office for Responsible Research

Title: The Influence of Mentoring on Socially Responsible Leadership Capacity Based on Institution Carnegie Classification

The Co-Chair of the ISU Institutional Review Board (IRB) has reviewed the project noted above and determined that the project:

☐ Does not meet the definition of research according to federal regulations.

☒ Is research that does not involve human subjects according to federal regulations.

Accordingly, this project does not need IRB approval and you may proceed at any time. We do, however, urge you to protect the rights of your participants in the same ways you would if IRB approval were required. For example, best practices include informing participants that involvement in the project is voluntary and maintaining confidentiality as appropriate.

Please also know that **any change** to this project must be communicated to the IRB to determine if the project has become research with human subjects requiring IRB approval.

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