

Women in Academic Leadership Roles at Research Intensive Universities:
Examining the Recent Past Using NSOPF-93

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Abstract

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This study investigates gender differences in personal and institutional factors that impact women's advancement to academic leadership roles at research intensive universities. It uses data from a 1993 national collection of information on post-secondary faculty. Academic leaders were defined as faculty who served as department chairs, deans, provosts, vice-presidents of academic areas presidents and chancellors. In terms of personal factors, differences in marital status, average amount of time in leadership positions, and tenure status, were found between male and female academic leaders. No differences were found with respect to the institutional factors of private or public universities, student enrollment size, or percent of under-represented students enrolled.*

*It is with sadness that we note that the author passed away prior to filing this dissertation. While the dissertation contains only the author's words, the abstract was provided by the chair of the supervisory committee.

CHAPTER 1

INTRODUCTION

Women in senior academic leadership roles (chair, dean, provost, and president) are under-represented compared to the numbers of female students and graduates in academe. Women have earned the majority of baccalaureate degrees since 1982 and the majority of master's degrees since 1984 (U.S. Dept. of Education, 2010). The number of women earning doctoral degrees has steadily increased and in 2009, the last year for which data are available, women earned 46.8 percent of U.S. doctorates (National Science Foundation, 2010). Additionally, females have earned the majority of doctorates in fine arts, foreign languages, social work, nursing, education, psychology, anthropology, and other fields in the humanities since the mid to late 1970s (National Science Foundation, 2002; Chronicle of Higher Education, 2002).

Federal legislation in 1968 mandated that educational organizations develop affirmative action plans to recruit and hire more women and minorities (Hanna, 1993; Hill & Raglund, 1995). By 1982, two years prior to women earning the majority of baccalaureate degrees, women comprised 26 percent of postsecondary faculty and nearly thirty years later, their representation has grown to 42 percent. However, women are concentrated in the lowest faculty levels, i.e. Instructor or Lecturer, from which they are unlikely to be tenured, much less appointed to academic leadership positions (U.S. Dept. of Education, 2010; Chronicle of Higher Education, 2004). In 2007, women comprised at least half of the faculty positions only at the lowest faculty levels: instructor (54 percent) and lecturer (53 per cent) levels.

Presently in the U.S., women are 26 percent of full professors, 39 percent of associate professors, and 47 percent of assistant professors (U.S. Dept. of Education, 2010; Chronicle of Higher Education, 2010).

Because the primary career path for significant academic leadership positions runs through the tenure ladder faculty ranks leading to subsequent appointments into roles of department chair, dean, and so on (ACE, 2007; Birnbaum & Umbach, 2011; King & Gomez, 2008; Ross & Green, 1998; Touchton, Shavlik, & Davis, 1993; Walton & McDade, 2001; Warner & DeFleur, 1993), it logically follows from the data presented that the number of female academic leaders would be expected to be somewhat lower than the number of male leaders. The number of women assistant professors would seem to portend a brighter future for the numbers of women associate and full professors, and depending on their rate of transition from faculty ranks, also for the numbers of women in academic leadership positions. Yet women are tenured at lower rates (Acker, 1997; Glazer-Raymo, 1999; Moore & Sagaria, 1993) and affirmative action policies have not fully remedied their slower rates of promotion to senior faculty levels or appointment into leadership positions (Acker, 1997; Hanna, 1993; Hill & Raglund, 1995; Twombly & Moore, 1987; Walton & McDade, 2001). Additionally, when women are appointed to senior leadership levels, it is most often at two-year institutions where a higher percentage of faculty are women. Although the percentage of female college presidents increased overall from 9.5 percent in 1986 to 23 percent in 2006, the rate at two-year colleges increased from 7.9 percent to 28.8 percent. At doctoral granting universities, the percentage of female presidents increased 10 percentage points in the same two decades, from 3.8 percent to 13.8 percent (ACE, 2007; Ross & Green, 1998).

Purpose of Study

The purpose of this study is to investigate gender differences in personal factors (demographic and academic background) and institutional factors (such as type of control and institutional size) that impact women's advancement to academic leadership roles at research intensive universities¹. Analyses of the variables will identify differences between female and male academic leaders, as well as intra-gender differences between academic leaders and faculty who are not academic leaders. Identifying whether factors are unique to women in academic leadership roles or to female faculty overall can guide when and where to focus practices and policies designed to increase the number of women in academic leadership roles.

Existing research on female leaders at research universities in higher education is limited. The majority of work focuses on leaders at community colleges or non-selective institutions, or on leaders in the field of student affairs or student life. There is some qualitative work on organizational and societal gender constraints on promotion into senior faculty and leadership roles comparing Australian universities to those in Turkey (Ozkanh & White, 2008), South Africa and Portugal (White, Carvalho, & Riordan, 2011), and the U.K. (White, Bagilhole, & Riordan, 2012). But the remaining work is either historical in nature, obscured in unpublished doctoral dissertations (Brown & Irby, 2005; Grogan & Shakeshaft, 2001, 2011), or based solely on women college presidents (ACE, 2007; Birnbaum & Umbach, 2011; King & Gomez, 2008; Ross & Green, 1998). The few studies on women

¹ When the data used in this study were collected, the Carnegie Classification System would have categorized these universities as "Research I Universities." Since then, their labels have included Doctoral/Research Universities Intensive (2000), Research Universities Very High [research activity] (2005), and Research Universities (very high research activity) (Carnegie Foundation for the Advancement of Teaching, n.d.).

presidents primarily focus on their leadership practices and both professional and personal experiences. Only two surveys identify the common characteristics of women presidents (ACE, 2007; Touchton, Shavlik, & Davis, 1993), and neither focuses solely on women presidents at research intensive universities. For universities with medical schools, Morrissey and Schmidt (2008) assert that increases in the number of tenured or tenure-track female faculty mean “women...are approaching parity in number, but not in positions of power and influence. Their voices are largely absent from upper-level institutional and national dialogues...” (p. 2007). Additionally, one survey of women chief academic officers identifies the most common characteristics of both the women in these roles and their institutions (Walton & McDade, 2001) but, overall, postsecondary women academic leaders are an under-studied group, most particularly at research intensive universities. No quantitative studies explore both personal and institutional factors impacting women’s ascension into professional leadership positions (e.g. chairs, deans, provosts, and presidents). Also no empirical studies compare these factors by academic field.

This exploratory study addresses these knowledge gaps through analysis of data in the National Survey of Postsecondary Faculty – 1993 (NSOPF-93), the second national collection of data on postsecondary faculty completed by the National Center for Educational Statistics in 1992. Analysis of data from this time provides a useful baseline for future studies because the Family Medical Leave Act of 1993 required employers to provide unpaid work leave on personal events that are often of particular impact on women, such as pregnancy, adoption, and elder-care. During the same time period, universities were in the early stages of developing policies permitting faculty to slow the tenure clock. Additionally,

women had earned the majority of doctorates in the humanities and several social science fields since the 1970s (National Science Foundation, 2002), so sufficient time had elapsed for them to achieve tenure and to move into academic leadership roles as positions opened.

Specifically, this study will explore the following questions:

- What differences exist in personal characteristics (demographics, academic background and status) and institutional characteristics between male and female academic leaders at research intensive universities?
- Within their academic fields, what differences exist in personal and institutional characteristics between male and female academic leaders at research intensive universities?
- What differences exist in personal and institutional characteristics between male and female academic leaders and the male and female faculty not in academic leadership roles?
- Within their academic fields, what differences exist in personal and institutional characteristics between male and female academic leaders and the male and female faculty not in academic leadership roles?

Background

Explanation for women's continuing disproportionate attainment of academic leadership roles starts in research on women's disproportionate promotion to senior faculty ranks. That research primarily highlights two lines of argument. One side argues that women's low rate of promotion to these roles is a function of personal characteristics or circumstances due to

their marital status, family responsibilities, general lack of mobility, or aspirations that exclude leadership roles (Austin, 1984; Bell, 1992; Clarke, 1988; Mann & Smith, 1990; Schultz & Easter, 1997; Sederberg & Mueller, 1992). The other argument relies on a more structural explanation, highlighting how higher education institutions create "invisible, artificial barriers...[that stem from]...attitudinal and organizational prejudices...that bar women from top executive jobs" (Glass Ceiling, p. 1). These barriers include differential hiring practices in which women are evaluated differently from male candidates (Collins, Parrish, & Collins, 1998; Kolpin & Singell, 1996; Smart & McLaughlin, 1985), and lower recognition and rewards for women's academic and leadership contributions (Austin, 1984; Clarke, 1988; Hearn, 1999; Johnsrud & Heck, 1994; Konrad & Cannings, 1997, Rosser, Johnsrud, & Heck, 2000). Additionally, when women break into administrative roles, they tend to be clustered in lower levels of leadership (Chliwniak, 1997; Clarke, 1988; Clegg, 1998; Moore, 1990) and concentrated in less prestigious institutions (Chliwniak, 1997; Clarke, 1998; Moore, 1990; Moore & Sagaria, 1993; Sagaria, 1988).

Analyzing women's under-representation in the leadership ranks through either a structural model based on organizational policies and social mores, or solely a personal one based in agency and personal choices, is simplistic. This binary creates a false dichotomy where factors are considered individually, but not in relationship with each other. It is more fruitful to examine both structural and personal factors and the interactions between these factors as delineated in Giddens' Structuration Theory.

Giddens' Structuration Theory

Giddens (1976, 1979, 1984) recognized that organizations and social systems tend to replicate themselves, and the heart of Structuration Theory is the notion of the duality of structure where structure is both the medium and outcome of all social processes. Structure includes the resources and rules that allow similar social practices to exist across time and space, thus making them systematic. Agents include individuals and groups who draw upon these structures to carry out social actions. Structuration is a process whereby people use their knowledge of structure as a basis for all social activity, and that knowledge is shaped, but not wholly formed by existing social structure. Thus Structuration is an active constituting process where all social interactions, large or small, contribute to the replication or modification of social systems. This is not a direct cause and effect relationship since structure and agency interact, collide, interrupt, and reinforce each other.

Giddens postulates that agents learn about existing social structure primarily through personal experience or observation of it. This internalizes and embeds knowledge about these structures in memory, called memory traces. Knowledgeability is what agents know about what they do and why they do it (1976). Parallels can be drawn between internalizing memory traces that serve as behavioral guides for agents and Bourdieu's theory of cultural capital. The latter is defined as the knowledge that middle and upper class families transmit to their families which substitutes or supplements the transmission of economic capital as a way to maintain status and privilege (1977a). Children internalize this knowledge, and it shapes how they view and experience the world, influences what they expect of it, and

shapes how they respond to it. Bourdieu terms these belief systems as their “habitus” (Bourdieu 1997b).

No particular research methodology is attached to Structuration Theory. Giddens focused his research on the production and reproduction of social practice within a contextual framework. He searched for stasis and change, agent expectations, routines, traditions, and creative, strategic thought and action simultaneously. He investigated intended and unintended consequences, discursive and tacit knowledge, and the motivations and constraints on action (Stones, 2005).

The application of Structuration Theory offers a richer understanding of why there are limited numbers of women academic leaders as it allows consideration of personal and agentic factors about women in academe, as well as institutional, organizational, and social factors. It also allows consideration of the interplay between these factors, providing a broader understanding of why the number of women leaders remains disproportionately low.

Importance of the Study

Guided by Structuration Theory to examine both the personal and structural factors affecting the achievement of academic leadership roles, this study illumines the career trajectories for women interested in these roles in ways that have not been done previously. The results can inform searches and selection of academic leaders in order to provide fair access to those roles regardless of gender. When capable faculty interested in academic leadership roles are not selected for those roles based on gender differences, all of academe loses.

These losses affect faculty and the academic institutions in different ways. First, there are the individual losses of women faculty whose career aspirations are diminished through reduced opportunities. Second, there are the collective institutional losses when leadership potential is thwarted and wasted rather than being nurtured and developed for the benefit of postsecondary institutions. Although neither women nor men can be assumed to employ particular leadership practices based on gender, there are increasing calls for academic leaders to employ the “feminine” leadership strategies most often attributed to women leaders such as collaborative leadership practices. If these leadership practices are needed in the academy, then there is a need for all potential leaders who could employ these practices to have equal opportunities to fill these roles.

Identifying and addressing the barriers faced by women faculty desiring academic leadership roles means academe can more accurately reflect the gender composition of students while potentially providing a more hospitable culture for them as well as women faculty. If these types of cultural change are possible, predictions based in Structuration Theory would suggest that it may be possible to identify and ameliorate the barriers faced by other populations traditionally under-represented in postsecondary education.

Overview of the Study

Data from the 1993 National Study of Postsecondary Faculty (NSOPF- 93), sponsored by the National Center for Educational Statistics, are used to identify the factors influencing achievement of academic leadership roles. The foundation of this study is grounded in the relevant theoretical and empirical literature informing this research. Chapter 2 provides a

review of this literature. Both sociological and psychological frameworks related to the interactive nature of personal and structural factors of career attainment provide the conceptual framework for this study.

Chapter 3 delineates the specific research questions for this study and provides a detailed description of the methodologies, particularly how the data will be used to address the research questions. Rooted in Giddens' Structuration Theory (1976, 1979, 1984), the rationale for each question is presented. Additionally, an overview of the NSOPF-93 data set is described, including sample design, data collection, and processing procedures.

Chapter 4 presents the results of the exploration of differences in personal and structural factors between the 1993 male and female academic leaders collectively, and in their academic fields. It also presents gender differences between academic leaders and their counterpart faculty who are not academic leaders both overall and in their academic fields. The final chapter reviews the results and implications for the findings, and the implications are discussed theoretically and practically. The chapter concludes with a discussion of the study's limitations and suggestions for future research and inquiry.

CHAPTER TWO

REVIEW OF THE LITERATURE

Existing research relies on personal or structural theories to explain the under-representation of women in leadership roles both in and out of academe. Personal theories refer to women's choices or their characteristics while structural theories focus on institutional practices, organizational culture, and social mores. The same bifurcation of personal versus structural explanations also guides the limited amount of literature focused on the low numbers of women in academic leadership in postsecondary education. Starting with a brief overview of women's participation in higher education, this chapter reviews literature from education and social psychology exploring women's under-representation in leadership roles. Leadership styles often attributed to women are discussed. The chapter closes with a discussion of Giddens' Structuration Theory which proposes an interactive process, not a dichotomy, between personal and structural factors that explain this under-representation.

Background: The Increasing Participation of Women in Postsecondary Education

Inspired by the female seminaries of the 1820s, Georgia Female College opened as the first women's collegiate institution in the United States in 1836. The following year, Oberlin College birthed co-educational education by admitting female students, and in 1855, the University of Iowa became the first public university to admit women. Vassar College was founded in the 1860s and the following decade, Cornell College voted women equal rights amid concerns about developing 'strong minded women' and 'unmanly men' (Rudolph, 1962).

Despite pervasive concerns about women's participation in academe, including their potentially negative influence on male students (Rudolph, 1962), the numbers of women college students increased steadily. By 1980, women surpassed the number of men enrolled in U.S. colleges and universities. Since 1982, women have earned the majority of all U.S. bachelors' and masters' degrees (National Science Foundation, 2002). In 2009, women earned 46.8 percent of all doctorates (U.S. Department of Education, 2010). They have earned the majority of doctorates in most social sciences and humanities fields such as anthropology, education, psychology, fine arts, and foreign languages, since the mid to late 1970s (National Science Foundation, 2002).

Although the number of women earning degrees increased steadily over the years, the number of women in academic positions in post-secondary education remained extremely low until after significant legislation opened more opportunities. The Equal Pay Act of 1963 and the Civil Rights Act of 1964 were the precursors of affirmative action that was part of Presidential Executive Order 11375 signed in 1968. It required development of written plans to recruit and hire women and minorities by federal contractors. In 1972, Title IX was enacted to prohibit discrimination on the basis of gender in federally assisted education programs (Hill & Raglund, 1995). It mandated educational organizations develop affirmative action plans, state their policies, disseminate them, and implement them.

Despite these policies, women made only modest progress being hired as faculty on campuses (Hanna, 1993). Periodic state budget shortfalls and other funding cuts to higher education partially explained why the "hiring of women faculty has not kept pace ... with

women's graduation from doctoral programs" (Hensel, 1997, p.34). Additionally, affirmative action itself began to be seen as a source of reverse discrimination, primarily against white males, not as a corrective strategy for classes of people who had historically been treated differently (Aufderheid, 1992, Chliwniak, 1997). The proportion of female to male faculty remained slow to change (Cooper, 2002).

Current Status

The number of women earning undergraduate and advanced degrees has increased dramatically, and the overall number of women faculty has also grown. In 1982, the year women first earned the majority of baccalaureate and master's degrees, only 26 percent of post-secondary faculty were female. Although the number of female faculty doubled by 1993, approximate parity was reached only at public two-year institutions (44.6%), and women were only 22.8 percent of faculty at public research universities (Cooper, 2002).

By 2008, 69.5 percent of all two-year college students, 54.2 percent of all four-year college students, and 57.2 percent of all graduate students were female. Although 41.8 percent of all faculty were female by that time, (Chronicle, 2010), female faculty were the majority only in the lowest faculty levels: Instructors (54%) and Lecturers (52.8%). Despite a 7 percentage point increase in the last decade, women are still only 26.5% of Professors. Increases in the ranks of Associate and Assistant Professors have been larger: 41.1 percent of Associate Professors and 47.4 percent of Assistant Professors are female (Chronicle of Higher Education, 2010).

The career path to significant academic leadership roles runs through tenure track faculty ranks for appointments to department chairs, deans, and so on (Ross & Green, 1998; Touchton, Shavlik, & Davis, 1993; Walton & McDade, 2001). The time required for this process to occur means there will be a delay before the numbers of female academic leaders fully can reflect the number of female students or faculty. The increasing number of women assistant professors would seem to portend a brighter future for the numbers of women associate and full professors, as well as women in academic leadership positions. However, women are tenured at lower rates (Acker, 1997; Glazer-Raymo, 1999; Moore & Sagaria, 1993; Parsad & Glover, 2002; Perna 2005) and affirmative action policies did not fully remedy their slower rates of promotion to senior faculty levels or appointment into leadership positions (Acker, 1997; L.H. Collins, 1998; Hill & Raglund, 1995; Twombly & Moore, 1987). Further, despite all the progress, the majority of women hold the lowest level faculty positions, such an Instructor or Lecturer, that are usually not tenure-track positions (Chronicle of Higher Education, 2010). Lacking the opportunities for tenure, they are unlikely to be appointed to academic leadership positions

Explanations for Women's Lower Representation in Academic Leadership Roles

Explanations for women's continuing disproportionate promotion into academic leadership positions fall primarily along two lines of argument. One side argues that women's low rate of participation in academic leadership positions is a function of personal circumstances or characteristics due to their marital status, family responsibilities, lack of mobility, limited aspirations (Austin, 1984; Bell, 1992; Clarke, 1988; Mann & Smith, 1990; Schultz & Easter, 1997; Sederberg & Mueller, 1992), or investing too much time in service (Konrad, 1991;

Rausch, Ortiz, Douthitt, & Reed, 1989) and nurturing activities such as teaching and advising (Chrisler, Herr, & Murstein, 1998; Johnsrud & Des Jarlais, 1994; Russell, 1991). The other argument relies on structural explanations, highlighting how higher education institutions create "invisible, artificial barriers...[that stem from]...attitudinal and organizational prejudices... that bar women from top executive jobs" ("Glass ceiling," p. 1). These barriers include differential hiring and/or promotion practices (A.B. Collins, Parrish, & Collins, 1998; Kolpin & Singell, 1996; Quina, Cotter, & Romenesko, 1998; Smart & McLaughlin, 1985; Perna, 2005); not providing necessary leadership development opportunities, such as committee work related to finances, to potential women leaders (Walton & McDade, 2001); and lower recognition and rewards for women's academic and leadership contributions (Austin, 1984; Clarke, 1988; Hearn, 1999; Johnsrud & Heck, 1994; Konrad & Cannings, 1997). Additionally, when women break into administrative roles, they tend to be clustered in lower levels of leadership at less prestigious institutions (Chliwniak, 1997; Clarke, 1998; Moore, 1990; Moore & Sagaria, 1993; Sagaria, 1988).

To begin understanding how personal and structural factors have been interwoven and underpin women's career choices and leadership attainment, it is helpful to review the literature on women's career development and the literature on women in academe. The next section provides that overview.

Women's Career Development

The term "women's career development" has largely been a generic term subsuming possible career options; the jobs selected by women; the choices that women make to enter,

stay, stop-out, or leave the workforce; and career advancements or inhibitors to advancement that women experience. Until recent years, women's career choices, options, and development were assumed to be the same as men's, though thought to be muted due to familial obligations (Phillips & Imhoff, 1997). The fundamental question asked was why women worked, and women were expected to fulfill societal expectations to make careers secondary to their families. These obligations were assumed natural and universal for women, thus shaping an individualistic model of women's career development where women were assumed to have full agency. In other words, all career decisions were individual choices and the influences of familial, institutional, or societal constraints were assumed natural for all women, effectively rendering these factors invisible.

Gender-related circumscription theory, proposing that women's career choices are wholly limited by gender roles, received some attention for a brief period (Gottfredson, 1981). This emphasis solely on structural limitations impinging on women's career development and achievement was fairly short lived, though women continued to perceive and experience barriers to success. These included diminished expectations based on gender, often expressed as women having lower career aspirations than men (Evans & Herr, 1991; Hackett & Betz, 1981; Holms & Esses, 1998; Leung, Conoley & Scheel, 1984; Matsui, 1994; Murrell, Frieze, & Frost, 1991; Scheye & Gilroy, 1994), and lowered expectations for success, particularly in fields considered traditionally "male" (Brooks & Betz, 1990; Kammer & Smith, 1986).

As recognition grew that women's career development was not necessarily the same as men's, questions arose about how well classic career development theories applied to women. For example, when trait and factor psychological theories were questioned due to growing concerns of gender bias, widely used career assessment tools like the Strong Interest Inventory, based on Holland's theories of occupational choice and personality type, also drew extensive attention (Phillips & Imhoff, 1997). One way of interpreting these developments is that structural factors were no longer invisible so differences between the options available to men and women received increasing attention and critique.

Moving beyond one-dimensional theory, prominent theories of women's career development were based on women developing self-efficacy and self-concept. Beliefs and thoughts about self were viewed as most important in vocational choices, even more so than past performance or achievement (Hackett & Betz 1981). Additionally, family factors — both original and adult families—were also considered significant factors influencing women's career choices (Scott & Hatalla, 1990).

Recognition that familial obligations, prior experiences, and self-beliefs profoundly affect women's career development increased the complexity of understanding their career choices, but effected few changes in the nature of work itself. As women placed an increased value or emphasis on work, their stress levels skyrocketed due to home and family responsibilities since they did not significantly diminish (Niles & Anderson, 1993). Not surprisingly, there were consistent differences between men and women on beliefs regarding how work and family life are conducted, and women continue to carry much more of the

responsibilities for family life (Covin & Brush, 1991; Fox, Fonseca, & Bao, 2011; Schroeder, Blood, & Maluso, 1993; Schneer & Reitman, 2002). A large share of women's career development literature shifted to informing women that they must prepare to cope with the stress of holding multiple, often conflicting, roles for career advancement (Imhoff & Phillips, 1997).

Since 2000, the most significant stream of women's career development theory has prioritized relational processes, encompassing how connections to oneself, others, and society inform career development (Eagly, 2005; Jacobson & Aaltio-Marjosola, 2001; Motulsky, 2010). Relational paradigms have been used to study the balance of work and family (Schultheiss, 2006), mothering (Schultheiss, 2009), other interpersonal relationships (Dickerson & Taylor, 2000), workplace dynamics (Fletcher, 2004), and the meaning of work in people's lives (Blustein, 2006; Blustein, Kenna, Gill, & Devoy, 2008).

There are exceptions, but placing relationships at the center of women's lives, and thus career choices, aspirations, and development, creates career development paradigms that reflect the lives of most women as opposed to models centering careers and work with various relationships serving as appendages of various importance. As important as it is to understand women's career development in more realistic ways, it is important to remember that women generally continue to experience conflict since that male-defined constructions of work and career success continue to dominate most organizations as well as organizational research and practice (O'Neil, Hopkins, and Bilimoria (2008). Also, in terms

of relationships, “organizational realities demand the separation of career and life” (O’Neil, Hopkins, & Bilimoria, 2008, p. 730).

Women’s Career Development in Higher Education

The literature on women’s career development is generally congruent with what is reported for women in academe. In the latter, career choices based on self-concept theory are prominent and much credence is given to the importance of familial and other relationships.

Regarding self-concept, women faculty experience more difficulty creating and assuming a scholarly identity (Creamer & Engstrom, 1996). Although women present more research at refereed conferences (Adams & Bodle, 1995), they still tend to publish less than men do (Austin, 1984; Creamer, 1998, 1996; Symonds, Gemmell, Braisher, Gorringer, & Elgar, 2006). There is also recognition of the importance of relationships to career development. Women faculty who do not collaborate with others are less productive, and highly productive women faculty who had published at least 20 refereed articles in the previous five years, reported the importance of collegial exchange to their productivity (Kyvik & Teigen, 1996). Yet only 16 percent of these women reported the climates in their departments were supportive. The remainder described the climates of their departments as ranging from hostile to indifferent (Creamer, 1996), and these women sought collaboration and support elsewhere.

Although collaboration and relationships are important to women’s productivity, familial responsibilities often have adverse effects for women in academe. Logically, women

lacking adequate childcare publish less (Kyvik & Teigen, 1996), and being married tends to have a negative impact on women faculty's scholarly productivity (Aisenberg & Harrington, 1988; Bell, 1992; Bellas & Toutkoushian, 1999; Creamer, 1996, 1998; Kolodny, 1998; Muller, 1986; Simeone, 1987). Fox, Fonseca, and Bao (2011) studied 765 tenured or tenure track academic scientists² at nine research intensive universities and found that both male and female faculty experience work and family conflicts. Work and family conflict was considered bi-directional with either family/household responsibilities interfering more with work responsibilities or vice versa. Faculty of both genders reported experiencing both types of conflict, and both genders reported higher levels of work interfering with family/household than family/household over work. However, women experienced significantly higher levels than the men of both directions of conflict: family/household duties interfering with work at higher levels as work interfering with family/household duties.

At the highest levels of academic leadership, women college presidents are much less likely than their male counterparts to be married. This remains true even after removing all presidents who are members of religious orders barring marriage (American Council on Education, 2007; Ross & Green, 1998; Touchton et al., 1993). Yet being married is a significant positive predictor for men becoming academic leaders, but the same is not true for women (Leatherman, 1993; Touchton et al., 1993).

Women's Leadership Practices in Educational Settings

² The fields were computer science, engineering (all fields), biology/life sciences, chemistry, earth/atmospheric sciences, mathematics, psychology, and physics.

Despite knowing some factors common to women college presidents, studies of women leaders in educational settings have focused primarily on women administrators in the K-12 system, the level at which women have broken into significant leadership positions as superintendents and principals. Literature on women leaders in post-secondary settings particularly at research intensive universities, remains limited, currently providing little more than the demographic information on the limited number of women college presidents noted in the previous section.

Women principals and superintendents are characterized as employing an ethic of care; valuing relationships, inclusion, and connectedness; empowering others to work toward common goals; preferring non-hierarchical organizations; integrating professional and personal aspects of life; employing collaborative and participatory styles of leadership; and emphasizing the importance of hearing many voices (Belenky, 1986; Brunner, 1999; Colflesh, 1998; Fennell, 1999; Hill & Raglund, 1995; Jablonski, 2001; Moore, 1990; Regan & Brooks, 1995; Rusch & Marshall, Sagaria & Johnsrud, 1988; 1995; Wachs, 2000). They tend to include values and moral commitments, even spirituality (Grogan & Shakeshaft, 2001), to guide decision-making, and often opt to move decision-making out of a dichotomous win-lose mentality that risks leaders striving to win for the sake of winning. They prefer to share information and recognize the importance of common sense borne out of experience (Brunner, 1994; Hill & Raglund, 1995; Rusch & Marshall, 1995). As caring leaders, they also value “vicarious achievement”—success resulting from the contribution of the subject to the achievement of some other person (Blackmore, 1989, p. 105). In other words, women leaders take pleasure in the achievements of others and may measure their

own success in their abilities to empower others and nurture their development (Belenky, 1986; Grogan & Shakeshaft, 2011). Although not unique to women leaders, they often hold high levels of commitment to social justice (Grogan & Shakeshaft, 2012; Hall, 2002; Sanders-Larson, Smith-Campbell, Benham, 2006; Strahan, 1999, 2002).

One critique of the literature on women's educational leadership is that it either ignores or amplifies gender similarities and differences (Bell & Chase, 1995; Blackmore, 1989, Jablonski, 2001). Women superintendents are not automatically interpersonally oriented nor their leadership practices inevitably more integrated, and neither are all male superintendents non-relationally oriented. Bell and Chase (1995) and Blackmore (1989) contend that women's leadership practices are shaped by the context of work, including structural factors and unexamined assumptions that privilege male authority, norms, and dominance.

Although literature on women's leadership advocates inclusion and valuing diversity, it is only in more recent years that the numbers of women of color who have been superintendents have been high enough for their experiences to have been included in leadership literature. After conducting a qualitative analysis of the leadership philosophies and practices of women of color in school leadership positions, Benham and Cooper (1998) noted four additional themes common to them. Each held a deep-seated belief her leadership made a difference in the lives of students, approached her work with determination and courage, and was committed to social justice. Additionally, all defined her power through connectedness with others. Note these themes overlap or are consistent

with the leadership philosophies and practices common to women educational leaders with a particular emphasis on social justice common to feminist and other critical leadership theories that intentionally investigate questions of power.

Barriers to Women Leaders in Education

When women leaders interact, the impact of their messages as leaders may be distorted by perceptions of them as women.... When women lead organizations, they are responded to both in their formal position and as women. As a result their management behaviour has to take account of the constraints imposed by often-conflicting expectations of women in power (Hall, 1996, p. 90).

Beliefs about women leaders can create barriers for women becoming academic leaders. Gender has a significant negative impact on the initial attainment of academic leadership roles in higher education and negative opinions of female academic leaders can grow worse over time, regardless of job performance (Johnsrud & Heck, 1994). Yet in terms of leadership effectiveness, women and men are equally rated (Jones, 1987), and two studies found that women deans in a variety of academic disciplines at a research intensive university were rated as more effective than male deans (Rosser, 2003; Rosser, Johnsrud, & Heck, 2000).

Yet the beliefs about women leaders are powerful, and in the K-12 system, women are haunted by stereotypical beliefs such as that they sleep or scheme their ways into their positions (Hill & Raglund, 1995; Langford, 1995), and also that women cannot make

decisions, delegate authority, or handle financial decisions (Langford, 1995). Leadership styles based on collaboration may be mistakenly viewed as an inability to lead (Brunner, 1994; Grogan & Shakeshaft, 2011). Additionally, Hubbard and Datnow (2000) found that when male secondary teachers believed that an over-representative number of female teachers were involved in educational reform efforts, they created sufficient resistance to thwart reforms altogether. Simply increasing the numbers of women becoming educational leaders does not ameliorate this problem since increased numbers will not necessarily translate into actual equal representation or recognized equity as leaders (Blackmore, 1989).

Eighty percent of women college presidents reported that women administrators were discriminated against and treated differently than men in academic leadership positions. A slightly smaller percentage also believed there was differential access to those positions based on gender and also that women were treated differently in terms of support for research and women faculty's access to positions, promotions, and tenure (ACE, 2007; Touchton et al., 1993). Yet women leaders at both the K-12 and postsecondary levels tend to underestimate the strength of cultural climate and institutional barriers and blame themselves when these problems remain tenacious rather than recognize the problems are long entrenched in cultural and systemic bias (Acker, 1997; Langford, 1995).

Women leaders experience pressure to modify their leadership practices to conform to cultural expectations (Chliwniak, 1997; Kolodny, 1995), and women leaders and faculty find themselves in double binds. They are expected to somehow know unwritten rules, and despite particular efforts to attract more women into the sciences, they are expected to

cluster in areas more typically seen as feminine such as nursing, social work, and education (Aisenberg & Harrington, 1988). A study of the leadership at nine research universities revealed few women leaders from presidential to dean levels, and that the few women in leadership positions were found almost without exception in social work, and education (Raveling & Offer, 2000).

Women in non-traditional areas experience what Kanter termed “tokenism” where one person, or a very small group, are the only ones from a particular gender, ethnic group, or some other significant under-represented, yet usually visible, group (1977). People in token roles often bear the burden of their performances being evaluated as representative of all members of their particular group, diminishing their individuality. Tokenism is particularly deleterious for women and minority leaders and is a significant factor leading to underachievement or leaving academe altogether (Moore & Johnson, 1989).

Explanations Why Women Do Not Attain Leadership Roles Outside Academe

Outside the field of education, women’s clustering in lower levels in organizations is termed the “glass ceiling,” a phrase introduced in the mid-1980s (Cooper, et al., 2007). It refers to “artificial barriers based on attitudinal or organizational bias that prevent qualified individuals from advancing upward in their organization into management-level positions” (U.S. Department of Labor, 1991, 1).

The “pipeline” theory has been the most common explanation for why so few women are in upper levels of leadership in business organizations. In other words, this theory discounts

existence of a “glass ceiling” and instead argues that insufficient numbers of women are available for appointment into significant leadership roles (Forbes, Piercy, & Hayes, 1988). However, Carli and Eagly (2001) noted that, according to the U.S. Bureau of Labor Statistics in 2001, 45 percent of U.S. managers and administrators were women, and Wood and Lindorff (2001) found that women have the same leadership aspirations as men. These works and that of other researchers in psychology and business identify stereotypical gender-based expectations on how women and men are supposed to act as underlying women’s continuing disproportionately low appointments to leadership levels beyond initial appointments into managerial roles. However, some researchers would argue that some young women may aspire to high leadership levels, but choose not to enter leadership pipelines, or to stop mid-way, because of the negative cost to relationships due to the demands of work. For example, they may fear that attaining significant leadership roles will intimidate potential marriage partners, or that the time commitments for their leadership roles will damage their abilities to be engaged parents (Killeen, Lopez-Zafra, & Eagly, 2006; Lips, 2000; Lips 2001).

Sex Role Stereotyping

Unlike the literature in education describing women principals and superintendents employing collaborative, relational leadership styles, there is disagreement in the psychological literature as to whether differences exist between how women and men lead. Instead there is recognition of a range of leadership behaviors between autocratic and relationally-oriented practices and gender alone does not dictate where female or male leaders can be classified on that range (Eagly & Johannesen-Schmidt, 2001).

There is, however, agreement that male and female leaders are expected to act differently (Book, 2000; Cann & Siegfried, 1990; Eagly & Johnson, 1990; Eagly, Karau, & Makhijani, 1995; Heilman, 2001; Helgenson, 1990; Pratto & Espinoza, 2001; Ridgeway, 1997; Rosener, 1995; & Yoder, 2001). In essence, males in organizations are expected to be “agentic” while females are expected to be “communal” (Abele, 2003; Bakan, 1966; Fiske & Stevens, 1993). Agentic men are expected to be forceful, decisive, and independent and, as agentic leaders, are expected to influence others by being task-oriented, assertive, dominant, competitive, and by maintaining verbal and visual dominance. Communal women are expected to be kind, helpful, sympathetic, and concerned about others so women leaders are expected to display communal behavior by being interpersonally oriented, helpful, nurturing, and collaborative rather than competitive. Communal leaders are also expected to be less hierarchically oriented than agentic leaders (Abele, 2003; Bakan, 1966; Fiske & Stevens, 1993).

There are negative consequences for women in organizations who behave in ways contrary to standard gender stereotypes (Butler & Geis, 1990; Eagly & Johannesen-Schmidt, 2001; Grogan & Shakeshaft, 2011; Heilman, 2001; & Rudman & Glick, 2001) and agentic behavior tends to be most valued for men promoted to leadership roles (Heilman, 2001). Women are caught in a bind because communal behavior is not similarly prized, but if they act in ways perceived as being agentic and not communal, the incongruency with gender role expectations causes both their leadership potential to be assessed less favorably (Heilman, 2001) and evaluations of their work as leaders are less favorable (Carli & Eagly, 1999, 2001; Dovidio, Brown, Heltman, Ellyson, & Keating, 1988; Yoder, 2001). Agentic women

leaders are more disliked by both the men and women in the organization (Butler & Geis, 1990; Grogan & Shakeshaft, 2011) and viewed as “socially deficient“ (Rudman & Glick, 1998, 1999, 2001). Additionally, effective but assertive women are not viewed as being as capable as equally (or less) effective men. (Carli, 1990; Carli & Eagly, 1999, 2001; Heilman, 2001), and such men are viewed as more hireable (Rudman & Glick, 1998).

These findings indicate there are differences in the behavioral paths women and men follow to achieve leadership roles outside academe and that women are disadvantaged in those paths. The next section explores whether gendered differences also exist for men and women seeking academic leadership roles.

Differences in the Paths of Women and Men in Leadership Roles in Academe

The majority of literature on women leaders in higher education has focused on women administrators in student services. Although not academic leaders, the career trajectories of these women have differed from those of the men. Overall, women were much more likely to be in senior positions at smaller colleges, and more likely to be appointed to their first positions at younger ages and with less education than men. They moved to the top position from coordinator or assistant director positions, and their top positions were more likely to be titled dean or director rather than vice-president (Rickard, 1985).

The limited literature on women academic leaders in higher education provides some information on women college presidents and chief academic officers. Women presidents are less likely than women faculty or their male peers to have children and, unlike women

who do not aspire to high levels of academic leadership, eighty-four percent never stopped out of the job market for family reasons. Forty-four percent had mothers who worked outside the home, which is notable since their mothers were working as early as the 1940s when women were less likely to be employed outside the home. The majority attended women's colleges or smaller private institutions, and none initially aspired to become college presidents. Unlike their male peers, their aspirations developed over time and with experience (American Council of Education, 2007, Touchton et al., 1993).

There are also differences between female and male chief academic officers although both are likely to need doctoral degrees and experience prior to appointment to these positions. Walton and McDade's (2001) study of 208 female CAO's revealed that, like women college presidents, these women were less likely to be married (45.8 percent) or in committed relationships (1.7 percent) and slightly under half (49.7 percent) had children. Over half (52%) of the female CAOs reported their mothers had worked outside the home full-time, a rate exceeding that

Female CAOs came from educated families where roughly half of their fathers and mothers had at least baccalaureate degrees. Over one-third (36.9 percent) of the women CAO's were educated at women's colleges and the most frequent undergraduate majors were (in order): English, history, education, sociology, French, chemistry, nursing, mathematics, biology, and economics. Almost all had doctoral degrees (84.4 percent Ph.D.s and 10.1 percent Ed.D.s) and the remaining 3.9 percent had professional degrees. The most common doctoral fields were in the humanities or fine arts, social sciences, education, and the sciences.

Nearly half (49.7 percent) worked at baccalaureate liberal arts colleges, 35.8 percent were at masters and comprehensive institutions, and 12.8 percent were at research universities.

Fully 63.1 percent reported they aspired to a college presidency.

Moving Beyond Either – Or Explanations

Analyzing women's under-representation in leadership roles both in and out of academe through solely a structural argument based on organizational policies and social mores, or an agentic theory based in personal choices or intrinsic factors is simplistic. Research reveals that neither structural nor personal theories alone provide adequate explanations for the attenuation of women's advancement to leadership roles (Aguinis & Adams, 1998; Hind & Baruch, 1997; Wood & Lindorff, 2001). Ridgeway (2001) notes that the behaviors of women leaders may inadvertently reinforce gender role stereotypes, but this is still a false binary where structural and personal factors are not considered in relationship to each other. Individuals and organizations cannot be completely separated from each other so focusing solely on one, or various elements of one, as a theoretical framework to understand women's under-representation in leadership roles does not account for the bi-directional or interactive influences of individuals and organizations upon each other. The next section introduces Giddens' Structuration Theory as a means of considering personal and structural factors jointly.

Giddens' Structuration Theory

Giddens (1984) asserts that social scientists should focus neither on the experiences of individuals nor on the existence of social institutions, but rather on 'social practices ordered

across space and time.’ (Starratt, 1993). People are neither completely free agents nor pawns determined by social structural forces; instead they produce and reproduce social systems and structure via social interaction. "The structural properties of social systems are both medium and outcome of the practices they recursively organize" (Giddens, 1984, p. 25). The heart of Giddens’ Structuration Theory (1976, 1979, 1984) recognizes the duality of structure but attempts to avoid false binaries such as individual and society, free will and determinism, autonomy and dependence, and agency and social structure.

Social structure is the context in which people live, including the formal and informal, conscious and unconscious rules, expectations, and resources people use. Structure enables and constrains action and interaction. Structuration is a process where people use their knowledge to determine how they will act, and that knowledge is shaped, but not wholly formed by existing social structures. Giddens writes, “all social actors, no matter how lowly, have some degree of penetration in the social forms which oppress them” (1979, p. 145). An outcome of this process is that existing structures are potentially modified, yet reinforced. Thus interpreting the example of women leaders seeking to assert authority who modify that assertiveness with social “softeners” (Carli & Eagly, 2001) is more complex than merely saying the women are reinforcing stereotypes (Ridgeway, 2001). Instead there is a dialectic, an interactive process, between women’s perceptions and the restricting mores of the organizations, and then the women’s consequent behaviors. They may have reinforced gender stereotypes (“women are nice”) but they may have also contributed to the process leading to a point where women can be more assertive without penalty. However, it is important to recognize that they also bear the heavier burden in this process.

Previous studies on women's leadership attainment are underpinned with either a personal or structural factor theoretical framework. For example, when considering the discipline in which the highest degree was earned, the choice of a traditionally feminine field such as nursing would be attributed either to personal choice or to the limitations of social mores directing that choice. This simplistic dichotomy leaves an inevitable gap as personal explanations do not account for structural factors nor do structural theories account for personal factors. Applying Structuration theory based on the bi-directional interaction of personal and structural factors, including personal and agentic factors as well as institutional, organizational, and social factors, this study offers a much richer understanding of why women remain under-represented in academic leadership roles.

CHAPTER THREE

METHODS

This chapter presents the research questions driving this study's investigation, and provides a detailed description of the data that will be used to answer those questions. It also explains how Giddens' Structuration Theory underlies selection of the variables included in the data analysis.

Structuration Theory

Structuration theory posits that behavior is a bi-directional combination of personal choice influenced by the effects of structural constraints. Personal choices and structural constraints are interactive in that the influences run both ways, choice affects structural constraints and structural constraints affect personal choice. This permits examination of characteristics that are personal such as age, organizational such institutional size or location, and characteristics already influenced by both agency and structure such as discipline in which the highest degree was earned. For example, when a woman chooses to earn an advanced degree in a traditionally feminine field such as social work, her choice is undoubtedly influenced to some extent by gender role expectations. Her choice then reinforces the gender role expectations that social work is a feminine field.

The general design of this study was that a national sample of post-secondary faculty was used to explore characteristics of female and male faculty in academic leadership roles at

research intensive universities. Giddens' Structuration Theory and the findings regarding women academic leaders as described in Chapter 2 guided selection of independent variables. These variables were analyzed to identify similarities and significant differences between male and female academic leaders. The analysis was extended to explore the same variables for similarities and differences between male and female academic leaders and non-leaders in their academic fields. The last analyses focused specifically on gender differences in the levels of college attendance by the parents of the academic leaders and on the marital status of these leaders.

Research Questions, Study Methodology, Statistical Analyses, and Hypotheses

This study investigates the following questions.

Question 1. What differences exist in personal characteristics (demographics, academic background and status) and institutional characteristics between male and female academic leaders at research intensive universities?

Question 2. Within their academic fields, what differences exist in personal and institutional characteristics between male and female academic leaders at research intensive universities?

Question 3. What differences exist in personal and institutional characteristics between male and female academic leaders and the male and female faculty not in academic leadership roles?

Question 4. Within their academic fields, what differences exist in personal and institutional characteristics between male and female academic leaders and the male and female faculty not in academic leadership roles?

Study Methodology

This study uses secondary data to investigate whether there were significant differences between male and female faculty who attained academic leadership roles at research intensive universities in 1993. This was done for academic leaders and faculty who were not leaders overall and within their academic fields. This was the second collection of national faculty data and will provide a baseline for future comparative studies of this topic. The study subjects were faculty and academic leaders who held full-time, regular faculty appointments at research intensive universities. They had earned doctoral or professional degrees, and were either tenured or on the tenure track.

After using existing research literature and Giddens' Structuration Theory to identify variables of interest, the gender and academic field variables were explored. Although gender is a personal variable and academic field is an academic background/status variable, they drive the entire study so were analyzed first.

The rest of the analysis followed a three step process.

1. Male and female academic leaders were compared to the male and female faculty who were not in academic leadership roles. This revealed whether there were characteristics or patterns common to male and female academic leaders that differentiate them from other faculty.
2. Male and academic leaders were then compared to the male and female faculty to determine whether there were any statistically significant differences between the academic leaders and faculty of the same gender.

3. Male and female academic leaders were compared to each other to identify any statistically significant gender differences.

Academic field was added to the analyses. These three steps were then repeated to investigate gender differences for academic leaders within and between the academic fields

Variables

The variables were:

Personal Characteristics	Academic Background/Status	Institutional Characteristics
Gender (see note)	Academic Field (see note)	Public or Private Control
Racial/Ethnic Background	Type of Highest Degree	Geographical Location
Age	Length in Position	Enrollment
Marital Status	Tenure Status	Minority Student
Dependents	Academic Rank	Enrollment
Parental College Attendance		

Note: Although Gender is listed as a variable under Personal Characteristics and Academic Field listed under Academic Background and Status, they will be used as organizing factors for this study.

Marital Status and Parental College Attendance

Two personal variables are of particular note and will receive additional attention: marital status and parental college attendance. The most current literature indicates that while the differences in marital status between male and female faculty at four-year colleges and universities have grown smaller, they are still quite large and significant (Perna, 2005). The only studies on academic leaders that included marital status have been quite limited. Two focused solely on college presidents (American Council on Education, 2007; Touchton,

Shavlik, & Davis, 1993), and the other on female chief academic officers (Walton & McDade, 2001).

This study will be the first to explore this topic on a more broadly defined group of academic leaders that includes department chairs, deans, provosts, vice-presidents, presidents, and chancellors. It will also be the first study of this group solely at research intensive universities.

Parental college attendance is particularly interesting. It is a personal characteristic whose history is fixed. It is an example of the dialectic between agency and structure since it reflects the choices made by the parents within the structural shaping and constraints of their families and social expectations of the time. Additionally, with the exception of Walton and McDade's study on chief academic officers (2001), it has not been studied in academic leaders generally, or specifically on academic leaders in research intensive universities.

Statistical Analyses

The research questions are exploratory and the most of these variables were categorical. Utilizing SPSS, they were analyzed by the use of non-parametric cross-tabulations and other contingency-based analyses. Chi-square analyses were conducted to determine whether any differences found were statistically significant.

A limited number of the variables for this section were comprised of ratio data, allowing computation of means. These variables explored additional personal characteristics and institutional factors. Analysis of Variance (ANOVA) was conducted to determine whether statistically significant differences existed between the male and female academic leaders, and between the academic leaders and their non-leader faculty counterparts.

Marital status was a categorical variable, and multinomial logistic regression analysis was conducted to allow a more complex statistical analysis than chi square analysis. The dependent variable was attainment of an academic leadership role and the independent variables were gender and marital status. The regression was repeated with academic field added as another independent variable.

Hypotheses

This section includes the study hypotheses. Each prediction was predicated on the review of the literature presented in Chapter Two and corresponds to the research questions guiding this study. The hypotheses are about personal characteristics, academic background and status, and institutional characteristics.

1. Significant differences will be found in the personal characteristics, academic background and current status, and institutional characteristics between male and female academic leaders.
2. Significant differences will be in the personal characteristics, academic background and current status, and institutional characteristics between male and female academic leaders in their academic fields at research intensive universities.

3. Significant differences will be found in the personal characteristics, academic background and current status, and institutional characteristics between the female academic leaders and female faculty who were not academic leaders, as well as between the male academic leaders and male faculty who were not academic leaders at research intensive universities.
4. Significant differences will be found in the personal characteristics, academic background and current status, and institutional characteristics between the male academic leaders and male faculty who were not academic leaders in their academic fields, and the female academic leaders and female faculty who were not academic leaders in their academic fields at research intensive universities.

Note that for questions 2 and 4, the low number of female academic leaders precludes investigation of all variables by academic fields since low numbers can diminish the validity and meaning of statistical analysis.

Data Source

This study used the 1993 cycle of the National Study of Postsecondary Faculty (NSOPF-93) database to investigate gender differences in selected personal characteristics, academic backgrounds, and institutional characteristics by faculty who had attained academic leadership roles. This dataset was chosen due to its validity in describing higher education faculty as evidenced through many previous conducted empirical studies, and due to convenience in availability. Additionally, analyses of these data provide a foundation for

future comparison of results with NSOPF -99, NSOPF-04, and other future waves of the survey datasets.

The 1992-93 National Study of Postsecondary Faculty (NSOPF-93) was sponsored by the U.S. Department of Education's National Center for Education Statistics (NCES). The study received additional support from the National Science Foundation (NSF) and the National Endowment for the Humanities (NEH).

NSOPF-93, the second cycle of NSOPF, was conducted in 1992-93 by the National Center for Educational Statistics (NCES) with support from the National Endowment for the Humanities (NEH) and the National Science Foundation (NSF). This survey was limited to institutions and faculty but was an expanded sample of 31,354 faculty and instructional staff from 974 two-year or higher accredited institutions of higher education. The National Opinion Research Center (NORC) at the University of Chicago conducted the survey under contract to the NCES. The purpose was to provide national data on backgrounds, responsibilities, workloads, salaries, benefits, composition, turnover, recruitment, retention, tenure policies, attitudes, and future plans of both full and part-time faculty.

NSOPF-93 Sample Design

The NSOPF-93 utilized a two-stage stratified random sample design. The first-stage sampling frame consisted of a subset of all nonproprietary accredited U.S. postsecondary institutions that grant a 2 year (A.A.) or higher degree drawn from the 1991-92 Integrated Postsecondary Education Data System (IPEDS) universe. This consisted on a total of 3,256 institutions stratified by a modified Carnegie classification system according to type and

control. This included eight types of institutions: research universities, other doctoral universities, comprehensive colleges and universities, liberal arts colleges, non-profit two-year colleges, independent medical schools, religious colleges, and another type which included a range of medical schools and other specialized degree granting colleges and universities. A total of 974 institutions were selected in the first stage.

The second-stage sampling frame consisted of a subset of faculty and instructional staff drawn from lists of faculty and instructional staff provided by the institutions selected in the first stage of sampling. An average size of 41.5 percent of faculty from each institution were selected, with each institution randomly assigned a target sample size of 41 or 42 percent. Individuals were selected from five strata of faculty. The strata included four over-sampled groups (full-time females, Blacks or Hispanics, Asians or Pacific Islanders, and faculty in four NEH disciplines – philosophy/religion, foreign languages, English language and literature, and history) and one group consisting of all other faculty. Simple random sampling was used in each group, with the sampling independent from one stratum to another. The NSOPF-93 included faculty and staff who taught at least one course for credit, or its equivalent, during the fall semester, as well as anyone else who had any type of instructional responsibility (e.g., supervising thesis or dissertation committees, individualized instruction, etc.). Teaching assistants and faculty who had no instructional responsibilities at all, such as researchers, administrators, etc. were not included in the sample population.

In order to produce a national description of faculty, the “sample was weighted to produce national estimates of faculty. The weights were designed to adjust for differential probabilities of selection and non-response at the institution and the faculty levels” (NCES, 1994, p.22).

NSOPF-93 Data Collection and Response Rates

The 974 sampled institutions were contacted by mail and telephone initially to obtain their cooperation and to obtain lists of eligible faculty and instructional staff. Between October 1992 and June 1993 all 974 institutions were contacted with a total of 817 agreeing to provide the requested lists of faculty. Twelve institutions were determined to be ineligible for an overall institution participation rate of 84.9 percent.

The subset of faculty and instructional staff were surveyed by mail between January and December 1993 with computer-assisted telephone interviewing (CATI) non-response follow-up. Seventy percent of the responses to NSOPF-93 were completed by mail with an additional 17 percent achieved by CATI for a total response rate of 87 percent. Of the 31,354 faculty sampled, a total of 25,780 faculty completed the survey and 1,590 (5.1%) were determined ineligible.

NSOPF-93 Data Procedures

The reliability and validity of the instrument was field tested with a national probability sample consisting of 636 faculty from 136 institutions from (NCES, 1994). In order to minimize the potential for non-sampling errors, the sample design, data collection and

processing procedures were also assessed in the field test. Utilizing the institutional and faculty sample, an extensive item non-response analysis was conducted followed by additional evaluation of the questionnaire and the survey procedures.

Description of the Study Sample Population

This study focuses on female academic leaders at research intensive universities.

Organizational expectations and cultures vary by institutional type, and research intensive universities were selected because the least amount of research has been done on female academic leaders at these types of institutions. Following are descriptions of faculty, research intensive universities, and academic leaders.

Faculty

Drawing on NSOPF-93, this study included only faculty in four year research intensive universities (see below) who held full-time, regular appointments. They held either doctorates or professional degrees, and were either tenured or in a tenure-track faculty position.

Research Intensive Universities

Colleges and universities in the NSOPF-93 dataset were classified according to the taxonomy of the 1987 Carnegie Classification of Higher Education. It identified six types of institutions: Research, Doctoral, Comprehensive, Liberal Arts, Two Year, and Other.

Research I & II Universities and Doctoral I & II Universities both offered a full range of baccalaureate programs, were committed to graduate education through the doctorate, and

gave high priority to research. The Research Universities awarded 50 or more doctoral degrees each year. Doctoral universities award at least 10 doctoral degrees a year in three or more disciplines, or 20 or more doctoral degrees in one or more disciplines (“Definitions,” 2004).

Only faculty who satisfied the criteria listed above who were employed at Research I & II and Doctoral I & II institutions were included in this study. For simplicity, these institutions are called “Research Intensive Institutions” or “Research Intensive Universities. This yielded 3,145 faculty.

Academic Leaders

An academic leader was defined as a full-time, regular appointment, tenured or tenure track faculty member holding a doctorate or professional degree who was in an appointment with any of the following job titles: chair, dean, provost, academic vice-president, president, or chancellor. Those in student life roles, including vice-president, were excluded because these are usually staff, not faculty, positions. The career paths into these positions rarely follow the faculty trajectory based on tenure.

Academic leaders were identified in two ways. First, by identifying their primary job as one of the titles listed above. Second, faculty who answered affirmatively to a question asking if they were department chairpersons were also included since they held a significant leadership position, but may have identified something else, for example, research, as their primary work. This more expansive definition of academic leadership was used because

most senior level academic leaders started as their academic leadership careers as department chairs and also because the greatest number of women leaders are in the department chair positions. Inclusion of all these levels insures adequate numbers of women will be included in analyses.

This definition yielded a total 409 academic leaders of which 314 were male and 95 were female.

Primary Variables Explored in this Study

The selection of variables for this study were theoretically grounded in Giddens' Structuration Theory and guided by the literature.

Variables Related to Personal, Academic, and Institutional Characteristics

There are two categories of variables in this study. Demographic and academic background and status comprise Academic background and current status variables are the characteristics common to university faculty. They also reflect the interactions between agency and structure. An explanation of each category and the variables in it follows.

Personal Characteristics

Cited as meaningful in the literature on academic leaders, these are the conventionally identified demographic measures. They include gender, age, racial or ethnic background, marital status, and responsibility for dependents. College attendance by the parents of the academic leaders is a less common variable, but important to this study as a characteristic exemplifying the dialectic between agency and structure described in Structuration theory.

Some personal characteristics include the things over which we have no control, such as age. Other personal variables reflect the dialectic between agency and structure, for example, marital status.

Academic Background and Current Status

The literature revealed that academic leaders from some disciplines are over-represented in leadership roles, so academic field was included in the analysis. The choice of academic field is shaped by the dialectic between structure and agency. Additionally, for this study, it joined gender as a primary variable since it was used for all analyses in the second half of the study

Since faculty with doctoral and professional degrees are most commonly clustered in research intensive universities, only faculty with doctorates or professional degrees were included in this study. Although it's a delimited variable, the highest degree earned was also included. Third, there seems to be gendered differentials in academic rank appointments and promotion to tenure. In addition to academic field, the other variables used were highest degree earned, length of time in position, tenure status, and faculty rank.

Institutional Variables

The underlying premise of Structuration theory is that institutional or organizational factors influence agency, so analysis of these factors is essential. Also, the limited literature on female academic leaders indicates they are more likely to be found at certain types of institutions, typically, smaller ones with higher enrollments of students from under-

represented minority backgrounds. The selected variables include institutional control, geographical location, institutional size, and rate of minority student enrollment.

Definition and Measurement of Variables

In this section, the study variables are defined conceptually and operationally. The coding schemas are also provided.

- **Faculty Member**

Conceptual Definition: Tenured or tenure-track individuals with doctorates or professional degrees who hold regular, full-time faculty appointments in four-year, research intensive universities who held the rank of professor, associate professor, or assistant professor,

Operational Definition: The terms “faculty member” or “faculty” were operationalized through the NSOPF-93 Faculty Questionnaire questions.

Faculty Status

Question 3. During the 1992 Fall Term, did you have faculty status at this institution?

1. **Yes**
2. No, I did not have faculty status
3. No, no one has faculty status at this institution

Employment Status

Question 4. During the 1992 Fall Term, did this institution consider you to be employed part-time or full-time?

1. Part-time
2. **Full-time**

Type of Appointment

Question 11. During the 1992 Fall Term, which of the following kinds of appointments did you hold at this institution?

1. Acting
2. Affiliate or adjunct
3. Visiting
4. Assigned by religious order
5. Clinical (*write in title or position*) _____
6. Research (*write in title or position*) _____
7. **None of the above**

Tenure Status

Question 7. What was your tenure status at this institution during the 1992 Fall Term?

1. **Tenured**
2. **On tenure track but not tenured**
3. Not on tenure track
4. No tenure system for my faculty status
5. No tenure system at this institution

Academic Rank

Question 9. Which of the following best describes your academic rank, title, or position at this institution during 1992 fall Term?

- NA. Not applicable: no ranks designated at this institution**
1. **Professor**
 2. **Associate Professor**
 3. **Assistant Professor**
 4. **Instructor**

Note: "NA" was coded as 5 in order to insure no academic leaders were removed from the study due to their institutions not having academic rank. These respondents were cross-referenced by other variables, such as principal activity (question 2) and faculty status (question 3) to insure they were academic leaders.

Highest Degree

Question 16. Please list below the degrees or other formal awards that you hold, the year you received each one, the field code that applies, name and location of the institution from which you received each degree or award. Do not list honorary degrees.

CODES FOR THE TYPE OF DEGREE

1. Professional degree (M.D. D.D.S., L.L.B., etc.)
2. Doctoral degree (Ph.D., Ed.D., etc.)
3. Master's degree or equivalent
4. Bachelor's degree or equivalent
5. Certificate, diploma, or degree for completion of undergraduate program of more than 2 years but less than 4 years in length
6. Associate's degree or equivalent
7. Certificate, diploma, or degree for completion of undergraduate program of at least 1 year, but less than 2 years in length.

A.	B.	C.	D.	E.
Degree Code	Year Received	Field Code	Name of Field	Institution
(1) Highest _____	_____	_____	_____	_____

- **Academic Leader**

Conceptual Definition: Excluding those in student life or library positions, an academic leader was a faculty member whose primary job title was department chairperson, dean, provost, academic vice-president, president, or chancellor; and faculty who had other job titles, but reported they were department chairpersons.

Operational Definition: Academic leader was operationalized based on the following survey items.

Academic Leader

Question 2. What was your principal activity at this institution during the 1992 Fall Term? If you have equal responsibilities, please select one.

1. Teaching
2. Research
3. Technical activities (e.g., programmer, technician, chemist, engineer, etc.)
4. Clinical service
5. Community/public service
6. Administration

WRITE IN TITLE OR POSITION _____

- | |
|--|
| 7. On sabbatical from this institution |
| 8. Other (subsidized performer, artist-in-residence, etc.) |

Note: NCES created a variable (z2) with response data in the categories listed below. Some additional information was also provided, for example, Deans of Students. Only respondents selecting Dean, Chair, President/Chief, Vice-President, and Chancellor/President were included. They were cross-referenced by other variables, i.e. faculty status, to insure that faculty in academic leadership positions were included.

- | | | |
|----------------------------|--------------------------------|---------------------------|
| 1 = Teaching | 9 = Dean | 17 = Chaplain |
| 2 = Research | 10 = Chair | 18 = Advisor/Counselor |
| 3 = Technical | 11 = Program Director | 19 = Librarian |
| 4 = Clinical Service | 12 = President/Chief | 20 = Registrar |
| 5 = Public Service | 13 = Asst to the President | 21 = Secretarial/Clerical |
| 6 = Other Administration | 14 = Vice President | (22 was not used) |
| 7 = Sabbatical | 15 = Administrator/Manager | 23 = Athletic Director |
| 8 = Subsidized Performance | 16 = Chancellor/Provost | 24 = Other |

Academic Leader

Question 5. Were you chairperson of a department or division at this institution during the 1992 Fall Term?

- | |
|--------|
| 1. Yes |
| 2. No |

Note: Respondents selecting “Yes” were first cross-referenced to question 2 and those indicating that teaching or research was their primary work activity were re-coded as Chairs. For inclusion in the study, they also had to satisfy all other selection criteria, i.e. full-time faculty with regular appointments.

Personal Characteristics Variables

Conceptual Definition: Personal characteristics are largely demographic variables that provide information on factors like gender, age, race and ethnicity, marital status, dependents, and whether one's parents attended college.

Operational Definition: Personal Characteristics were operationalized based on the following survey items.

Gender

Question 51. Are you . . .
1. male, or
2. female?

Age

Question 52. In what month and year were you born?

Note: NCES created two age variables.

Variable x01f52 provided the ages of the respondents at the time of data collection.

Variable x03f52 categorized age into the following ranges:

- 1 = under 35 years
- 2 = 35-44 years
- 3 = 45 – 54 years
- 4 = 55 – 64 years
- 5 = 65 – 70 years
- 6 = 71 or older

For this study, 5 and 6 were compressed to create one range of 65 years and older.

Race/Ethnicity

Question 53. What is your race?
1. American Indian or Alaskan Native

2. Asian or Pacific Islander
3. African American/Black
4. White
5. Other (*write in*) _____

Question 54. Are you of Hispanic descent?

1. Yes
2. No

Note: NCES created Variable x01f53 which categorized answers about racial background into the following:

- 1 = American Indian/ Alaska Native
- 2 = Asian/ Pacific Islander
- 3 = Black, not Hispanic
- 4 = Hispanic
- 5 = White, not Hispanic

College Attendance Rates by Parents of 1993 Faculty and Academic Leaders

Question 58. What is the highest level of formal education completed by your mother and your father?

1. Less than high school diploma
2. High school diploma
3. Some college
4. Associate's degree
- 5. Bachelor's degree**
- 6. Master's degree**
- 7. Doctorate or professional degree (e.g., Ph.D., M.D., D.V.M., J.D./L.L.B.)**
8. Other
- DK. Don't know

Note: for this study, response items 5. Bachelor's degree, 6. Master's degree, and 7.

Doctorate or professional degree were combined. This was coded as:

- 1 = earned bachelor's degree or higher
- 2 = did not earn bachelor's degree (items 1, 2, 3, 4, 8, DK)

Marital Status

Question 55. What is your current marital status?

1. Single, never married
2. Married

- 3. Living with someone in a marriage-like relationship
- 4. Separated
- 5. Divorced
- 6. Widowed

Note: For this study, the data were sorted into the following to create single and married.

- | | |
|---------------------------------|----------------------------------|
| <u>Single was comprised of:</u> | <u>Married was comprised of:</u> |
| 1 = Single, never married | 2 = Married |
| 4 = Separated | 3 = Living with someone |
| 5 = Divorced | |
| 6 = Widowed | |

Dependents

Question 50. For the calendar year 1992, how many dependents did you have? Do not include yourself. (A dependent is someone receiving at least half of his or her support from you.)

_____ Number of dependents

Note: NCES created a new variable, x01f55 which provided the following categories on marital status and dependents.

- 1 = Single, no dependents
- 2 = Single, dependents
- 3 = Married, no dependents
- 4 = Married, dependents

To create a variable indicating whether respondents did or did not have dependents, x01f55 was recoded to the following.

- | | |
|---|--------------------------------------|
| <u>Coded as 1, YES, have dependents</u> | <u>Coded as 2, NO, no dependents</u> |
| 2 = Single, dependents | 1 = Single, no dependents |
| 4 = Married, dependents | 3 = Married, no dependents |

Academic Background and Current Status Variables

Conceptual Definition: Academic background and current status are the educational experiences faculty bring with them, namely academic field and highest degree earned. They also include variables that describe their current faculty positions, i.e. academic rank, tenure status and length of time in the position. Some of these variables overlapped with the definition of faculty or with personal characteristics variables. These were academic rank, tenure status, and highest degree earned. The questions that operationalized these variables are listed above. In addition to those variables, the field in which the highest degree was earned was an academic background and status variable.

Operational Definition: The question and recoding for highest degree earned, academic rank, and tenure status were in the variables that qualified respondents as faculty. They are listed in that section. Academic field was operationalized from the following two survey questions.

Academic Field

Question 12. What is your principal field or discipline of teaching?	
NA. Not Applicable	
CODE FOR FIELD OR DISCIPLINE _____	NAME OF PRINCIPAL FIELD/DISCIPLINE _____

Question 13. What is your principal area of research? If equal areas, select one.	
NA. Not Applicable	
CODE FOR FIELD OR DISCIPLINE _____	NAME OF PRINCIPAL FIELD/DISCIPLINE _____

CODES FOR MAJOR FIELDS OF STUDY AND ACADEMIC DISCIPLINES

Agriculture	Multi/Interdisciplinary Studies
Architecture & Environmental Design	Natural Sciences: Biological Sciences
Art	Natural Sciences: Physical Sciences
Business	Parks & Recreation
Communications	Philosophy & Religions
Computer Science	Protective Services
Education	Psychology
Engineering	Public Affairs
English & Literature	Science Technologies
Foreign Languages	Social Sciences & History
Health Sciences	Statistics
Home Economics	Teacher Education
Law	Theology
Library & Archival Sciences	Vocational Technical
Mathematics	Other

Note: NCES compressed the fields of study and academic discipline options in a new variable, x01a12. Its categories were:

- 1 = Agricultural/Home Economics
- 2 = Business
- 3 = Education**
- 4 = Engineering**
- 5 = Fine Arts**
- 6 = Health Sciences
- 7 = Humanities**
- 8 = Natural Sciences**
- 9 = Social Sciences**
- 10 = All Other Fields

For this study, these categories were further compressed to create academic fields.

- 3 = Education → 1. Education
- 4 = Engineering → 2. Natural Sciences and Engineering
- 8 = Natural Sciences → 2. Natural Sciences and Engineering
- 9 = Social Sciences → 3. Social Sciences
- 5 = Fine Arts → 4. Humanities
- 7 = Humanities → 4. Humanities
- 1 = Agriculture/Home Economics → 10. All Other Fields
- 2 = Business → 10. All Other Fields
- 6 = Health Sciences → 10. All Other Fields

Institutional Variables

Conceptual Definition: The literature review revealed that women academic leaders in post-secondary institutions are more likely to be at smaller institutions, and that women college presidents are more often found at private institutions (Touchton, Shavlik, and Davis, 1993). Women also tend to head institutions with higher levels of minority student enrollment. Based on this, the institutional variables were institutional control, the geographical (regional) locations of the research intensive universities, the numbers of undergraduate and graduate students enrolled at each university, and the percentage of undergraduate and graduate students from under-represented minority backgrounds.

Operational Definition: The NSOPF-93 survey did not include questions about institutional control, geographical location, institutional size, and rates of enrollment of under-represented minority undergraduate and graduate students. Instead, the IPEDS data with this information was matched to each respondent.

Conclusion

The results of these analyses will be presented and discussed in the next chapter. Chapter 4 provides a small portrait of the female faculty who were academic leaders at research intensive universities in 1993. Guided by Structuration Theory and the literature, it uses data from the 1993 National Study of Postsecondary Faculty to explore similarities and differences between male and female academic leaders generally, and between these academic leaders and the faculty who were not leaders. The analyses include personal

characteristics, academic background and current academic status, and institutional characteristics. There is particular emphasis on marital status and the rates of earning bachelor's degrees college by the parents of the academic leaders. The analysis will deepen by considering all these factors within the context of academic fields.

CHAPTER 4

DATA ANALYSIS and RESULTS

Introduction

The 1993 NSOPF data was culled to identify 3,145 faculty with doctoral or professional degrees who held regular, full-time appointments at research intensive universities. These were the universities categorized as Research Universities and Doctoral Universities according to the 1994 Carnegie Classifications. Through the rest of this study they will be simply called “Research Universities.” Defined and described more fully below, the academic leaders in the faculty group were then identified. This yielded 409 academic leaders.

Guided by the literature and Giddens’ Structuration Theory, three types of variables were sought: agentic, structural, and a third type exemplifying the dialectic between personal and structural variables. The NSOPF survey questions were culled and sorted into the three categories used in this survey: personal, academic background and status, and institutional. Although there are short-comings, these variables represent aspects of Structuration Theory concepts, particularly the dialectic between structural and agentic forces. For example, academic rank is an academic background and status variable, but cannot be viewed without the influence of both agency and structural issues. Or, marital status is a personal variable that is agentic, but it is also influenced by societal norms and expectations which are structural considerations in Giddens' work. However, the number and type of questions for institutional variables were limited to institutional characteristics such as enrollment size or

type of control. The survey included questions about level of satisfaction with benefits generally, and respondents were asked to provide figures on financial supplements or non-monetary compensation received beyond salary, but these items were excluded from analysis due to lack of specifics. With no information on the policies and practices reflected in results, it was impossible to determine whether these factors were germane to Structuration Theory and this study.

The data were analyzed in the following order: comparisons of male and female academic leaders to each other; comparisons of the male and female academic leaders to the male and female faculty, respectively, who were not academic leaders; comparisons of the male and female academic leaders in their respective academic fields; and comparisons of the male and female academic leaders in their respective fields to the non-leader male and female faculty in their academic fields. The limited number of female academic leaders in Natural Sciences and Engineering, Social Sciences, and Humanities often precluded meaningful analyses, so they were combined to create Arts and Sciences which was used for analyses.

This was an exploratory study that also sets a baseline for subsequent research based on later waves of NSOPF data. The statistical procedures were largely cross-tabs, and ANOVA. Nominal multinomial logistic regression was conducted on marital status in order to investigate potential interactions between variables. Also, tests to determine Z scores and their consequent p-values were conducted on gender proportions of academic leaders to the faculty who were not leaders.

Data Analysis and Results

For the purposes of this project, “academic leaders” were faculty within the 1993 faculty who served as department chairs; deans, provosts, and vice-presidents of academic areas; and as presidents and chancellors. Using this definition, there were 409 academic leaders in this data set.

The First Steps: Gender and Academic Field

Gender is the key variable in all analyses in this study so it was analyzed first. In order to explore potential differences across disciplines, academic field is a primary variable in additional analyses. Therefore, even though academic field is an academic background and status variable, the results of its analysis are presented immediately after gender, not in the results section for academic background and status.

Gender

The number of male academic leaders far out-paced the number of female academic leaders (see Table 4.1). Over three-quarters of the leaders were male (76.8%) and under one-quarter were female (23.2%). These results were quite similar to those found in the faculty who were not leaders although slightly under three-quarters were male (74.2%) and slightly over one-quarter (25.8%) were female. One sample binomial tests revealed the gender distribution among the academic leaders as well as in the non leader faculty groups differed in both groups differed at a statistically significant level ($p = .001$).

Table 4.1 Gender Distribution of Academic Leaders and Non Leader Faculty

	Males		Females		TOTAL	
	n	%	n	%	n	%
Academic Leaders ^a ***	314	76.8	95	23.2	409	100
Non Leader Faculty ^b ***	2019	73.8	717	26.2	2736	100
Total	2333	74.2	812	25.8	3145	100

^a compares male and female academic leaders

^b compares male and female non leader faculty

*** $p = .001$

Academic Field

The survey respondents identified the academic field(s) in which they taught or conducted research. There were statistically significant gender differences in the distribution of academic leaders in the various academic fields, $X^2(4, 409) = 36.76, p = .001$. As shown in Table 4.2, the gender distribution was nearly equal in Education where 51 percent of the academic leaders were female and 49 percent were male. In all other academic fields, the gender distribution of the academic leaders was far more lop-sided, with females comprising less than 20 percent of the academic leaders in Natural Sciences and Engineering (12.5%), Humanities (15.2%), and Social Sciences (18.7%). Less than 30 percent of the academic leaders in Other Fields were female (29.8%).

There was also a statistically significant gender difference in the distribution of non leader faculty in the academic fields, $X^2(4, 2736) = 52.66, p = .001$. Though lower than the proportion found among academic leaders, the highest proportion of females was again found in Education where over one-third of the faculty were female (37.6%). The second

highest female proportion was in Humanities (30.2%) followed by Other Fields³ (26.8%). The lowest rates of female faculty were found in Social Sciences (20%) and Natural Sciences and Engineering (18.6%).

Additional analyses comparing the gender distribution of academic leaders and non leader faculty within the same academic fields yielded no statistically significant findings. With comparable levels of female under-representation between the academic leaders and their non leader faculty counterparts, the question arises whether there are differences in the gender ratios of academic leaders to faculty.

Table 4.2 Academic Fields of the Academic Leaders and Non Leader Faculty, by Gender

Field	Academic Leaders ^a ***				Non Leader Faculty ^b ***			
	Males		Females		Males		Females	
	n	%	n	%	n	%	n	%
Education	28	49	29	51	224	62.4	135	37.6
Nat Sci / Engr	77	87.5	11	12.5	634	81.4	145	18.6
Social Sciences	61	81.3	14	18.7	265	80	84	20
Humanities	89	84.8	16	15.2	375	69.8	162	30.2
Other Fields	59	70.2	25	29.8	521	73.2	191	26.8

^a compares male and female academic leaders

^b compares male and female non leader faculty

*** $p = .001$

Note: Two changes will be reflected through the rest of this study. Since the focus of this study is on academic leaders in Education, Natural Sciences and Engineering, Social Sciences, and Humanities, the results for Other Fields will be excluded from tables, text, and

³ Other Fields included academic disciplines that could not be classified in the fields of Education, Natural Sciences and Engineering, Social Sciences, or Humanities.

discussions. Additionally, since the numbers of female academic leaders are so small in Natural Sciences and Engineering ($n = 11$), Social Sciences ($n = 14$), and Humanities ($n = 16$), these fields will be pooled to create a new variable called academic field 2 that includes Education, Arts and Sciences, and Other Fields.

Ratios of Academic Leader to Non-Leaders

The next analyses compared the ratios of female academic leaders to female non-leaders to those for the males. Table 4.3 shows that the male ratio of 21 was higher than the 18.1 ratio for females. In other words, overall there were 21 male academic leaders for every 100 male faculty, but 18.1 female academic leaders for every 100 female faculty. This difference was not statistically significant.

Education was the only field where females had a higher leadership ratio than males (21.5 female, 12.5 male), although the difference was not statistically significant. To determine whether Education was affecting the male to female ratios for all other fields, a second analysis was conducted with the field of Education removed. The difference between the 15.9 male ratio for All Fields without Education was different at a statistically significant level, $Z = 2.36, p = .02$. Finally, analysis of the new Arts and Sciences category revealed the lowest female ratio of 10.5. The difference between it and the 17.8 male ratio was statistically significant, $Z = 1.95, p = .05$.

These findings reveal that with the exception of the field of Education, females are under-represented in the numbers of faculty and academic leaders in the academic fields studied.

They are further under-represented proportionally in academic leadership roles, meaning that males have higher proportions of male academic leaders than females have same sex academic leaders.

Table 4.3 Academic Leader to Non-Leader Gender Ratios

Academic Field	Males			Females		
	Leaders n	Non-Leaders n	Rate	Leaders n	Non-Leaders n	Rate
ALL FIELDS ⁴	314	2019	15.6	95	717	13.2
Education	28	224	12.5	29	135	21.5
All Fields Minus Education ^a *	286	1795	15.9	66	582	11.3
Arts & Sciences ^b *	227	1274	17.8*	41	391	10.5*

^a compares ratios for all Academic Fields without Education

^b compares ratios for Arts and Sciences only

* $p = .05$

Personal Characteristics

In addition to gender, the personal characteristics variables included racial background, age, marital status, dependents, and the college education backgrounds of the parents of the academic leaders. To provide a baseline, the results for all these variables are presented even if they lacked statistically significant gender differences. Additionally, in some cases, the numbers of female academic leaders in their academic fields were so small that the fields were compressed. This may seem less satisfying than knowing the results for each field, but it increases the likelihood of meaningful comparisons where it is impossible to know whether differences are due solely to chance.

⁴ “All Fields” includes the Other Fields, so totals are higher than the sum of Education and Arts and Sciences.

Racial Background

Table 4.4 shows that the academic leaders and faculty of were predominantly white.⁵ The female academic leaders were 84.2 white compared to 79.9 percent of the males. This difference was not statistically significant. The gender difference among non leader faculty was statistically significant, $X^2(1, 2720) = 6.397, p = .012$. Slightly over 75 percent of the female non leader faculty were white (76.7%) and slightly less than one-quarter were members of racial minority groups (23.3%). Among the male non leader faculty, slightly over 80 percent (81.1%) were white and nearly 20 percent reported they were racial minorities (18.9%).

Table 4.4 Racial Backgrounds of Academic Leaders and Non Leader Faculty, by Gender

Racial Background	Academic Leaders				Non Leaders*			
	Males		Females		Males		Females	
	n	%	n	%	n	%	n	%
White	251	80.7	80	85.1	1625	81.1	549	76.7
Minority	60	19.3	14	14.9	379	18.9	167	23.3

* $p = .012$

The number of minority female academic leaders (10) was insufficient to conduct meaningful analysis within the four academic fields.

Age: Age Ranges, Means, and Medians

The age data was evaluated in three steps. First, the distribution of the academic leaders and non-leader faculty were analyzed in age ranges. Then data on just the academic leaders

⁵ The survey option was “White.” Other choices were American Indian or Alaska Native, Asian or Pacific Islander, African American/Black, Hispanic, and Other.

overall, and then in their academic fields, were analyzed on two variables: mean and median ages.

Age ranges.

Statistically significant gender differences were found in the distribution of academic leaders into age groups, $\chi^2(4, 409) = 13.33, p = .01$. Only four leaders (2 males and 2 females) were under 35 years of age, and only 13.7 percent were 44 years or younger (see Table 4.5). Nearly half of all academic leaders, and the greatest proportion of leaders of each gender, were in the 45 – 54 years age range. Slightly less than half of the males (48.4%) and just over half of the females (50.5%) were in this age range. The greatest disparities were in the top age ranges where nearly 40 percent of the male academic leaders ($n = 125, 39.8\%$), but only one-quarter of the female leaders ($n = 24, 25.3\%$) were aged 55 and above.

Over half (52.5%) of the non-leader females faculty were 44 years old and younger, compared to just over one third of the males (34.4%). The largest group of male non-leaders (34.9%) were aged 45-54, and nearly one-third third of the male faculty (30.7%) were aged 55-64 and above. Only 17.2 percent of the female faculty were in these age ranges. These differences were statistically significant, $\chi^2(4, 2736) = 94.69, p = .001$.

Table 4.5 Age Distribution of Academic Leaders and Non-Leader Faculty, by Gender

Age Range	Academic Leaders ^a **				Non Leaders ^b ***			
	Males		Females		Males		Females	
	n	%	n	%	n	%	n	%
Under 35	2	0.6	2	2.1	138	6.8	72	10
35 - 44	35	11.2	21	22.1	558	27.6	305	42.5
45 – 54	152	48.4	48	50.5	705	34.9	233	32.5
55 – 64	110	35	19	20	486	24.1	82	11.4
65 and above	15	4.8	5	5.3	133	6.6	25	5.8
Total	314	100	95	100	2019	100	717	100

^a compares age ranges of academic leaders

^b compares age ranges of non leader faculty

** $p = .01$

*** $p = .001$

Mean ages of academic leaders.

The male academic leader mean age was 52.9 years and the female leader mean was 50 years (see Table 4.6). Though small, this difference was statistically significant, $F(1, 408) = 11.05, p = .001$. When sub-divided into academic fields, the mean age for males in Education was 53.9 years compared to 50.5 years for the female academic leaders. This difference was slightly outside statistical significance ($p = .065$). In Arts and Sciences, the male academic leader mean was 52.6 years and the female mean was 50.2 years. This difference was statistically significant, $F(1, 267) = 4.03, p = .046$.

Table 4.6 Mean Ages of Academic Leaders, by Field

	Male Leaders	Female Leaders
ALL FIELDS***	52.9	50
Education	53.9	50.5
Arts & Sciences***	52.6	50.2

* $p = .046$

*** $p = .001$

Median ages of academic leaders.

The median age of the male academic leaders was 53 years while the female median was 49 years (see Table 4.7). An independent sample median test revealed this difference was statistically significant ($p = .024$). The median age of male academic leaders in Education was 55.5 years and the female median was 50 years. This difference was statistically significant (.05). The difference in median ages of male and female academic leaders in Arts and Sciences (males, 53; females, 50) was not statistically significant.

Table 4.7 Median Ages of Academic Leaders, by Field

	Male Leaders	Female Leaders
ALL FIELDS ^a * ¹	53	50
Education ^b * ²	55.5	50
Arts & Sciences	53	50

^a compares medians in all academic fields

^b compares medians in education only

* $p^1 = .024$

* $p^2 = .046$

What can be gleaned from the age data is that the most common age range for academic leaders was 45 – 54 years. Of the leaders not in that age range, more women were in the younger ranges and more males were in the older ranges. Consistent with this, the male median age was 53 years and the female median was 50 years.

Marital Status

For the purposes of this study, the six options survey respondents were given to describe their marital status were coded as follows. “Married” included married or living with

someone in a marriage-like relationship⁶. “Not Married” included single, never married; separated, widowed, and divorced.

There were huge disparities in the marital rates between the males and females in this study. For the academic leaders, almost 90 percent of the males (89.8%) were married, compared to 57.9 percent of the females. (see Table 4.8). This difference was statistically significant, $\chi^2(1, 409) = 51.21, p = .001$. Among the faculty who were not leaders, slightly under 90 percent of the males (87.1%) and slightly less than two-thirds of the females (65.5%) were married. This difference was also statistically significant, $\chi^2(1, 2736) = 141.77, p = .001$.

Table 4.8 Marital Status of Academic Leaders and Non Leader Faculty, by Gender

	Academic Leaders ^a ***		Non Leader Faculty ^b ***	
	Male %	Female %	Male %	Female %
Married	88.1	57.9	87.1	65.5
Not Married	10.2	42.1	12.9	34.5

^a compares marital status of academic leaders

^b compares marital status of non leader faculty

*** $p = .001$

U.S. Census data was reviewed for comparison purposes to find the marital status of the general population. Table 4.9 shows that in 1990, for adults between the ages of 25 and 84, almost three-quarters of the males and nearly two-thirds of the females were married⁷ (Carter, et al., 2006). The marital rate for female academic leaders was nearly six percentage points lower than females in the general population while the rate for female

⁶ A total of 9 academic leaders selected “living with someone in a marriage-like relationship” (4 males = 1.3% and 5 females = 5.3%). For the non-leaders, 34 males (1.7%) and 27 females (3.8%) chose this option.

⁷ “Married” included those reporting they were “living with someone in a marriage-like relationship.” This was not an option on the census.

non-leaders was comparable to the general population. A higher percentage of male academic leaders and non-leaders were married than males in the general population.

Table 4.9 Marital Status of 1990 U.S. Adults Aged 25 -84, by Gender

	Males		Females	
	% Married	% Not Married	% Married	% Not Married
U.S Adults	72.2	27.8	63.8	36.2

Source: U.S. Census Data (Carter, et al., 2006)

Data analysis then turned to the marital status of the academic leaders and faculty non-leaders in their academic fields. Table 4.10 shows that nearly 90 percent of the male academic leaders (89.3%) were married compared to slightly under two-thirds of the females (65.5%). Although this difference was slightly outside statistical significance ($p = .056$), a difference larger than 20 percentage points merits notice. The difference for academic leaders in Arts and Sciences is even more striking. Nearly 90 percent of the males were married (87.8%), but barely more than half of the females were (51.2%). This difference was statistically significant, $X^2(1, 268) = 35.45, p = .001$.

The differences in marriage rates of male and female non-leaders were statistically significant in Education as well as in Arts and Sciences. In Education, almost 90 percent of the male faculty (88.8%) reported they were married while slightly less than two-thirds of the females (64.4%) reported the same, $X^2(1, 359) = 30.94, p = .001$. Almost 90 percent of the male faculty (88%) in Arts and Sciences also reported they were married, and slightly

more than two-thirds of the females (69.1%) said they were married, $X^2(1, 1665) = 78.04, p = .001$.

Table 4.10 Marriage Rates of Academic Leaders and Non-Leader Faculty, by Gender and Field

Field	Academic Leaders		Non-Leaders	
	Male % Married	Female % Married	Male % Married	Female % Married
Education	89.3	65.5	88.8 ^b ***	64.4***
Arts & Sciences	87.8 ^a ***	51.2***	88 ^c ***	69.1***

^a compares male and female academic leaders in A&S

^b compares male and female non leaders in Education

^c compares male and female non leaders in A&S

*** $p = .001$

Differences within Gender: Female Marital Status in Academic Fields

All variables were analyzed to identify significant differences between academic leaders and non-leader faculty of the same gender. Marital status was the only variable in the study where significant differences were found. In Arts and Sciences (see Table 4.10, slightly more than half of the female academic leaders (51.2%), but over two-thirds of the female non-leaders (69.1%) were married, $X^2(1, 432) = 5.37, p = .024$. The difference for females in Education was not statistically significant ($p = .08$). **ADD WHY IMPT per ST**

Multinomial Logistic Regression on Marital Status: Variables and Coding

Chi square analyses revealed statistically significant gender differences in marital status for the academic leaders and 1993 faculty. Multinomial logistic regression was then conducted to determine whether a statistical interaction existed, in other words, whether the

combination of gender and marital status combined in a way having a significant effect on attaining an academic leadership role.

Dependent variable: academic leader.

The dependent variable was Academic Leader. As defined in chapter three, academic leaders were full-time, tenured or tenure-track faculty members with regular appointments who were academic department chairs; deans, provosts and vice-presidents of academic areas; and presidents and chancellors.

The Academic Leader variable was constructed from NSOPF-93 Questions 2 and 5.

Question 2, a forced choice item, asked respondents what their principal activity at their institution had been during Fall 1992. The options included Teaching, Research, Technical service, Clinical service, Community/public service, Administration, On sabbatical, and Other. Respondents who selected “administration” were asked to write in their title or position. NCES categorized those responses to construct variable z2. It included 16 position titles in addition to the 8 response options listed above for Question 2. Five of the response options were selected for inclusion in the definition of academic leader: Dean, Chair, President/Chief, Vice-President, and Chancellor/Provost. Responses such as Dean of Students were excluded.

Question 5 was a dichotomous variable that asked respondents if they had been the chairperson of a department or division during Fall 1992. The respondents who answered “yes” were conditionally selected and cross-checked back to Question 2. Only those who

reported their primary job responsibility had been teaching or research were included as academic leaders.

Academic Leader Coding:
-1 = not academic leader
1 = academic leader

Independent variables: gender and marital status.

Gender was a dichotomous variable that asked respondents, “Are you ...” It was NSOPF-93 variable F51.

Gender Coding:
-1 = male
1 = female

Marital Status was drawn from Question 55 which asked respondents their current marital status. Their choices were Single, never married; Married, Living with someone in a marriage-like relationship; Separated; Widowed; and Divorced. Respondents who selected married or living with someone in a marriage-like relationship were coded as married. The remainder were coded as single.

Marital Status Coding:
-1 = married
1 = single

Multinomial logistic regression on marital status: the regression analysis.

Multinomial regression analysis was conducted. Academic Leader was entered as the dependent variable with 1 = academic leader as the reference category. Gender and Marital Status were entered as factors, and a full factorial model was selected.

Table 4.11 shows that the Gender and Marital Status interaction was statistically significant, and also that it contributed the most to the prediction of attaining an academic leadership role. There is something very powerful about being a married male that cannot be explained solely by gender.

Table 4.11 Summary of Multinomial Logistic Regression Analysis Predicting Attainment of an Academic Leadership Role

Variable	df	B	SE	Wald	<i>p</i>
Gender	1	.294	.248	1.40	.236
Marital Status	1	-.418	.222	3.55	.060
Gender x Marital Status	1	.641	.294	4.74	.029

Analysis was also conducted to investigate the role of academic fields, but this did not improve the prediction so the results are not provided.

Dependents

The NSOPF-93 survey asked respondents if they had dependents, defined as anyone receiving at least half of his or her support from the respondent. As shown in Table 4.12, over 80 percent of the male academic leaders (82.8%), but less than half of the female academic leaders (48.4%) reported they had dependents. This difference was statistically significant, $X^2(1, 409) = 45.76, p = .001$. The results for non leader faculty were similar. Slightly under 80 percent of the male non leaders (78.7%) and slightly less than half of the female non leaders (49.5%) reported they had dependents. These differences were also statistically significant, $X^2(1, 2736) = 218.19, p = .001$.

Table 4.12 Rate Academic Leaders and Non Leader Faculty Had Dependents, by Gender

	Academic Leaders ^a ***				Non Leader Faculty ^b ***			
	Males		Females		Males		Females	
	n	%	n	%	n	%	n	%
Have Dependents	260	82.8	46	48.4	1,589	78.7	355	49.5
No Dependents	54	17.2	49	51.6	430	21.3	362	50.5

^a compares male and female academic leaders

^b compares male and female non leader faculty

*** $p = .001$

Parental Education

Research on the impact of parental education on their children has primarily focused either on skill attainment in young children (for example, Estelle, 2011; Magnuson, 2007) or adolescents' aspirations to attend, enroll, or complete college (see Addington, 2005; Choy, 2001; Hossler, Schmit, & Vesper, 1999, Signer & Saldana, 2001). Maternal education, in particular, has a positive influence on children's educational goals (Addington, 2005; Karraker, 1992; Signer & Saldana, 2001), and is more pronounced for their daughters (Addington, 2005; Anderson, 1980; Signer & Saldana, 2001). There is also a considerable body of research on college attendance, completion, or attrition by students whose parents did not attend college (for example, see Adelman, 2002; Cabrera & La Nasa, 2001; McDonough, 1997; Pascarella, Wolniak, & Pierson (2004); Perna, 2006; Terenzini, Cabrera, & Bernal, 2001). However, extant research ends with baccalaureate degree completion by both parents and children.

Analyses of the parental education variables first provide additional insight into the paternal and maternal educations of a highly educated group, faculty at research universities who

have earned doctoral degrees. It also investigates the relationship between parental college completion and adult child attainment of an academic leadership role by gender.

Survey data were collected on rates of parental college attendance and completion of various levels of college degrees. For the purposes of this study, bachelor and higher level degree completion were combined. For brevity, these combined degrees will be called “B. A. or higher” in future text and tables⁸.

It is important to consider the context of parental degree completion. The median age of the female academic leaders was 50 years while the male median was 53 years (See Tables 14.7). Subtracting the female median of 50 years from 1993, the survey year, gives an average birth year of 1943, an important time in post-secondary education. It was a war year when the financial impact of decreased enrollments of both male and female students, but especially male students, prompted universities like Harvard to admit women students (Vlasnik, 2011, p. 27). It was one of two years during WW II when more females than males earned baccalaureate degrees (Carter, et. al. 2006). Quite significantly, the Servicemen’s Readjustment Act of 1944, commonly known as the GI Bill, was passed the following year, granting broad educational benefits to veterans (U.S. Department of Veterans Affairs, n.d.).

It is also useful to consider the education attainment levels in the U.S. population when viewing the rates at which the parents of the 1993 academic leaders and faculty non leaders had earned B. A. or higher degrees. Among the U.S. population aged 25 and older, 4.6

⁸ All baccalaureate degrees are included in the B.A. designation, i.e. B.S., B.F.A., etc.

percent held B. A. or higher degrees in 1940, compared to 6 percent in 1950, and 7.7 percent in 1960. Additionally, during many of these years, and in some regions, careers like school teaching required completion of only two years of college. Of the 216,521 baccalaureate, master's and doctoral degrees conferred in 1940, 86 percent were bachelor's degrees (58.7% to males and 41.3% to females). By 1950, the effect of the G.I. Bill was seen as the total number of degrees granted more than doubled to a total of number of 498,586 degrees. Of these, 87 percent were bachelor's degrees (76.1% to males and 21.9% to females). The number of baccalaureate degrees and higher degrees decreased to 479,215 in 1960, and 82 percent of these degrees were bachelor's degrees (64.7% to males and 35.3% to females) (Carter. et al., 2006).

Compared to the general U.S. population, the academic leaders and non leader faculty came from families with high levels of educational degree attainment. Asked to indicate the highest degrees earned by their mothers and fathers, they reported a total of 2,069 baccalaureate, master's and doctoral degrees. Half of the degrees were at the bachelor's level (69% earned by parents of males and 31% by parents of females). Half of the degrees were master's and doctoral degrees (also 69% earned by the parents of male and 31% by parents of females).

Both the female academic leaders and non-leaders had higher rates of parental degree completion than their male counterparts. Table 4.13 shows that over half of the female academic leaders (52.2%) had at least one parent earn a bachelor's degree compared to slightly over one-third (36.2%) of the male leaders. The difference was statistically

significant, $X^2(1, 323) = 4.94, p = .029$. For the faculty who were not academic leaders, the 53.2 percent degree completion rate by at least one parent of the female faculty was also higher than the 42.9 percent rate for the parents of the male faculty. This difference between the genders was also statistically significant, $X^2(1, 2017) = 17.27, p = .001$. There were no statistically significant differences between the academic leaders and faculty non-leaders by gender.

Table 4.13 B. A. or Higher Degree Completion by at Least One Parent of Academic Leaders and Non-Leader Faculty, by Gender

	Academic Leaders ^a *				Non-Leaders ^b ***			
	Males		Females		Males		Females	
Degree Completion	n	%	n	%	n	%	n	%
At least one parent earned degree	92	36.2	36	52.2	849	42.9	371	53.2
Neither parent earned degree	162	63.8	33	47.8	1128	57.1	327	46.8

^a compares male and female academic leaders

^b compares male and female non leader faculty

* $p = .029$

*** $p = .001$

The data were then analyzed to determine if there were any gender differences based on which parent had completed a minimum of a baccalaureate degree. Although the fathers of female academic leaders and non-leader faculty had higher levels of degree completion than the fathers of the males, these differences were not statistically significant. However, as shown in Table 4.14, the gender differences for degree completion by the mothers of the female academic leaders and non-leaders were significantly higher than for their male counterparts. Over 30 percent of the mothers of female academic leaders (31.6%) compared to 20.2 percent of the mothers of the male academic leaders had earned B. A. or higher degrees. $X^2(1, 407) = 5.36, p = .025$. Similarly, one-third of the mothers of female faculty

who were not leaders had earned a minimum of baccalaureate degrees (33.1%) compared to one-quarter of the mothers of the male non-leaders, $X^2(1, 2698) = 14.62, p = .001$. Once again, the degree completion difference between female academic leaders and non leaders was not statistically significant.

Table 4.14 B. A. or Higher Degree Completion by the Mothers of Academic Leaders and Non-Leader Faculty, by Gender

	Academic Leaders ^a *				Non-Leaders ^b ***			
	Males		Females		Males		Females	
Degree Completion	n	%	n	%	n	%	n	%
Mother earned degree	63	20.2	30	31.6	510	25.6	234	33.1
No degree	249	79.8	65	68.4	1481	74.4	473	66.9

^a compares male and female academic leaders

^b compares male and female non leader faculty

* $p = .025$

*** $p = .001$

Analysis was then conducted to determine if there were gender differences in parental educational levels for the academic leaders and non-leaders in Education and Arts and Sciences. As shown in Table 4.15, there were statistically significant gender differences for the mothers of female academic leaders in Arts and Sciences, $X^2(1, 267) = 4.73, p = .028$. Over one-third of the mothers of the female academic leaders (34.1%), but less than 20 percent of the mothers of male academic leaders (19%), had earned B.A. and higher degrees. Although the percentage of the mothers of the female academic leaders in Education was larger than that of the mothers of male academic leaders, the difference was not statistically significant. There were no statistically significant differences in the fathers' educational levels or the combination of either parent completing a minimum of a baccalaureate degree.

Table 4.15 B. A. or Higher Degree Completion by the Mothers of Academic Leaders, by Gender and Field

	Education				Arts & Sciences*			
	Males		Females		Males		Females	
Degree Completion	n	%	n	%	n	%	n	%
Mother earned degree	6	21.4	11	37.9	43	19	14	34.1
No degree	22	78.6	18	62.1	183	81	27	65.9

* $p = .028$

As previously noted, the mean and median ages of the female academic leaders was 49 years so half were born in 1944 and later, and the male mean and median was 52 years. Their parents' college degree completion was impacted by WW II and by the GI Bill, so the data were split using the female median age to further investigate the parental educational levels.

Unsurprisingly, the rate of B. A. and higher degree completion increased for academic leaders and non-leaders of both genders for those under 50 years of age. Table 4.16 reveals that exactly three-quarters of the female academic leaders compared to slightly more than half of their male counterparts (54.9%) had at least one parent earn a minimum of a bachelor's degree. This difference was statistically significant, $X^2(1, 174) = 6.18, p = .017$. The gender difference for the non-leader faculty was also statistically significant, $X^2(1, 1673) = 9.43, p = .002$, even though the percentage of parental degree completions was smaller than for the academic leaders. Less than three-quarters of the female non-leaders (74.6%) and nearly two-thirds of the males (64%) had at least one parent earn a minimum of a B.A. degree. Differences in completion rates by only the mothers or only the fathers were not statistically significant as were the differences between academic leaders and non-leaders of both genders.

Table 4.16 B. A. or Higher Degree Completion by at Least One Parent of 1993 Academic Leaders and Non-Leader Faculty Younger than 50, by Gender

Degree Completion	Academic Leaders ^a *				Non-Leaders ^b **			
	Males		Females		Males		Females	
	n	%	n	%	n	%	n	%
At least one parent earned degree	67	54.9	39	75	724	64	388	71.6
No degree	55	45.1	13	25	407	36	154	28.4

^a compares academic leaders

^b compares non leader faculty

* $p = .017$

** $p = .002$

The last analysis investigated differences in parental degree completion of the academic leaders younger than 50 of age in their academic fields. Table 4.17 shows that over 80 percent of the female academic leaders in Arts and Sciences (81.8%) had at least one parent earn a B. A. or higher degree compared to over half of the male academic leaders (53.4%). This gender difference was statistically significant, $\chi^2(1, 110) = 5.88, p = .015$. The women leaders in Education had a higher rate of parental degree completion than the males, but the difference was not statistically significant. Also, degree completion rates differentiated by which parent earned a degree were not statistically significant.

Table 4.17 B. A. and Higher Degree Completion by at Least One Parent of Academic Leaders, by Gender and Field

Degree Completion	Education				Arts & Sciences*			
	Males		Females		Males		Females	
	n	%	n	%	n	%	n	%
At least one parent earned degree	6	60	11	78.6	47	53.4	18	81.8
No degree	4	40	3	21.4	41	46.6	4	18.2

* $p = .016$

Summary of Personal Characteristics

Analysis of personal characteristics revealed that 80 percent of the male and female academic leaders were White and the mean age for both genders was roughly 50 years. Less than half of the female academic leaders had dependents compared to over 80 percent of the male academic leaders. The pattern of males having more dependents was also seen in non-leader faculty.

Nearly 90 percent of the male academic leaders and faculty non-leaders were married. Nearly three-quarters of the female academic leaders in Education were married, but barely half of the Barely half of the female academic leaders in Arts and Sciences were also married. The latter is particularly striking because there was a statistically significant difference in the marital rate between A&S female academic leaders (52.2%) and the female faculty who were not leaders (69.1%). This was the only variable in the entire study where a statistically significant difference was found between female academic leaders and their corresponding female non-leader faculty.

Compared to the general population, the academic leaders and faculty of both genders had highly educated parents. Over half of the female academic leaders and faculty non-leaders had at least one parent who had earned a minimum of a baccalaureate degree. Roughly one-third of the male academic leaders and 40 percent of the male non-leaders had at least one parent with the same levels of degree attainment. Consistent with earlier research, the

impact of the mothers' education had greater impact than the fathers' education on the females in this study (Addington, 2005; Anderson, 1980; Signer & Saldana, 2001).

Academic Background and Status

This section focused on the academic backgrounds and current status of faculty and academic leaders presents the findings for four variables: type of highest degree earned, time in current position, tenure status, and academic rank. As previously noted, the results for academic field were presented earlier since academic field was used in analyses of all personal and institutional factors.

Highest Degree

This study focused only on faculty who earned either doctoral or professional degrees.⁹ The NSOPF-93 survey did not differentiate between types of doctorates, for example, Ed.D. or Psy.D, so it remains unknown how many faculty or academic leaders held doctoral degrees other than the Ph.D. The breakdown by degree type was consistent for male and female academic leaders and non leader faculty. Approximately 90 percent held doctoral degrees and 10 percent had professional degrees. There were no statistically significant differences between any groups.

Time in Current Position

The NSOPF-93 survey asked faculty how long they had been in their current position at the institutions at which they were employed. This time in current position, tenure status, and

⁹ Professional degrees include the M.D. (medicine), D.D.S. (dentistry), or J.D. (law), etc.

rank need to be considered collectively in order to develop a more telling picture of these three variables.

Table 4.18 shows that the mean amount of time that male academic leaders reported being in their positions was 12.5 years compared to the 9.5 years reported by female academic leaders. This difference was statistically significant, $F(1, 408) = 8.06, p = .005$. There was a two year difference in the medians with half of the male academic leaders reporting they had been in their positions for 10 years compared to 8 years for the female academic leaders. This difference was not statistically significant.

The mean amount of time that male non leaders reported being in their current position was 13.6 years and the mean for the females was 8.4 years. This difference was statistically significant, $X^2(1, 2736) = 161.11, p = .001$. The median for the number of years faculty non leaders had been in their positions was 12 years for males and 5 years for females. An independent sample median test revealed this difference was statistically significant, $p = .001$.

Table 4.18 Mean, Median, and Range of Years in Current Position of Academic Leaders and Non-Leader Faculty, by Gender

Measure	Academic Leaders		Non Leaders	
	Males	Females	Males	Females
Mean Years	12.5 years ^a *	9.5 years ^a *	13.6 years ^b ***	8.4 years ^b ***
Median Years	10 years	8 years	12 years ^c **	5 years ^c **
Range of Years	1 - 32	1 - 32	1 - 46	1 - 37

^a compares mean ages of male and female academic leaders
^b compares mean ages of male and female non leader faculty
^c compares median ages of male and female non leader faculty
* $p = .016$
** $p = .006$
*** $p = .001$

A caveat must be added. Due to the structure of the questions, it was not completely clear whether the academic leaders reported how long they had held their faculty position versus how long they had held positions of academic leadership. Some leaders were identified by their answer to the question asking their primary job duties. Others were identified through their identification of themselves as department chairs. Therefore, a full professor who identified his or her primary job duty as research, but who was also a department chair, may have answered the question in terms length of time being a professor and not in terms of being the department chair.

Within the academic fields, a statistically significant difference was found in Education. As shown in Table 4.19, the mean number of years in position was 13.1 years for the male academic leaders and 8.9 years for the females, $F(1, 56) = 4.99, p = .029$. The same pattern of the mean number of years for the male academic leaders in Arts and Sciences being higher than the mean for female academic leaders, but the difference in Arts and Sciences was not statistically significant

The male academic leader medians for length of time in current position were higher than the female medians in two fields. The difference was greater in Education where the median for the male leaders was 13.5 years compared to six years for the female leaders. An independent sample median test revealed this difference was statistically significant, $p = .024$. Although the difference in medians for the academic leaders in Arts and Sciences was not statistically significant, an interesting finding was that the 10 year median the females

reported they'd been in their positions was longer than the 9 years reported by the male academic leaders¹⁰.

Table 4.19 Academic Leader Mean, Median, and Range of Years in Position, by Gender and Field

Academic Field	Male Academic Leaders			Female Academic Leaders		
	Mean*	Median	Range	Mean*	Median	Range
Education	13.9*	13.5	1-30	8.9*	6	1 – 24
Arts & Sciences	12.6	9.0	1-53	9.7	10	1 - 27

* $p = .029$

Tenure Status

Although only tenured or tenure-track faculty were included in this study, it is still useful to look at the proportion of male and female faculty who were tenured versus untenured but on the tenure track. This will be particularly important when considering the tenure status of academic leaders. As shown in Table 4.20, over 90 percent (93.3%) of the male academic leaders were tenured while 80 percent of the female leaders held tenured positions. This statistically significant difference in tenure rates, $X^2(1, 409) = 14.65, p = .001$, means fully 20 percent of the female academic leaders were untenured and on the tenure track compared to only 6.7 percent of male academic leaders having the same status.

Slightly less than three-quarters of the male non leaders (74.2%), compared to half of the females (50.3%), were tenured. Likewise, one-quarter of the males (25.8%) were on tenure-track compared to slightly less than half of the female faculty (49.7%). These gender

¹⁰ The median number of years academic leaders in the sub-fields comprising Arts and Sciences were: Natural Sciences and Engineering: males = 9 years and females = 4 years; Social Sciences: males = 9 years and females = 11 years; Humanities: males = 10 years and females = 10 years.

differences were statistically significant, $\chi^2(1, 2736) = 138.15, p = .001$, but might indicate a cohort effect since the male academic leaders in the study were, overall, more experienced.

Table 4.20 Tenure Status of Academic Leaders Non Leader Faculty, by Gender

	Academic Leaders ^a ***				Non Leaders ^b ***			
	Males		Females		Males		Females	
Tenure Status	n	%	n	%	n	%	n	%
Tenured	293	93.3	76	80	1498	74.2	361	50.3
Tenure-Track	21	6.7	19	20	521	25.8	356	49.7

^a compares male and female academic leaders

^b compares male and female non leader faculty

*** $p = .001$

In the academic fields, the percentage of tenured male and female academic leaders was roughly equivalent in Education (see Table 4.21). However, the 13 percentage point difference in tenure status between the male and female academic leaders in Arts and Sciences was a statistically significant difference in Arts and Sciences, $\chi^2(1, 268) = 7.37, p = .013$. Only 6.6% of the male academic leaders were on the tenure track, but untenured, compared to almost 20 percent of the female leaders (19.5%).

Table 4.21 Tenure Status of Academic Leaders, by Gender and Field

Field	Male Academic Leaders		Female Academic Leaders	
	% Tenured	% Tenure Track	% Tenured	% Tenure Track
Education	85.7	14.3	86.2	13.8
Arts & Sciences	93.4*	6.6*	80.5	19.5

* $p = .013$

Academic Rank

A larger proportion of both male and female academic leaders were full professors (75.5% and 49.5%) than was found in the non leader faculty group. Although the differences between the genders were both statistically significant, $X^2(1, 409) = 38.56, p = .001$, the pattern of academic rank provides more insight than the fact of statistical significance. Three-quarters of the male academic leaders (75.5%) versus just under half of the female academic leaders (49.5%) held that rank.

A much larger proportion of female academic leaders (20%) were assistant professors compared to male academic leaders in the same rank (6.7%). Viewed in concert with tenure status, this raises important questions about untenured academic leaders on the tenure track facing extra challenges earning tenure given the weight of academic leadership responsibilities in addition to the scholarly work they must do in order to earn tenure.

Curiously, 6.3 percent of the female academic leaders either held the role of lecturer, or were at institutions where no faculty had any rank. Less than 1 percent (0.6%) of the male academic leaders were in the same position.

Females were more likely to hold the rank of assistant professor, and the gender differences in academic rank were statistically significant, $X^2(1, 2723) = 207.63, p = .001$.

Although unsurprising, this analysis revealed an important pattern of male and female distribution across academic ranks. Excluding faculty in non-ranked positions, Table 4.21 shows the greatest proportion of male faculty non-leaders were full professors and the

lowest proportion were assistant professors. The reverse was true for the female faculty who were not academic leaders – the greatest proportion were assistant professors and the lowest proportion were professors. In actual numbers, nearly half of the male faculty (47.4%) were professors while less than one-quarter of the female faculty (20.5%) held the same rank. Over 40 percent of the female faculty (46.3%) compared to roughly 20 percent of the male faculty (22.2.6%) were assistant professors. Nearly one-third of the female faculty (31.6%) were associate professors and a slightly smaller proportion of male faculty (29.7%) held the same rank. It will be important to monitor these proportions in future years to monitor whether tenure and promotion rates remain lower for women.

A very small group of faculty were Instructors or Lecturers, positions classified as eligible for tenure, but without academic rank. Although only 1.4 percent of faculty reported holding one of these positions, women faculty were proportionally twice as likely as male faculty to be in these ranks (2.4% of female faculty and 1.0% of male faculty.)

Table 4.21 Academic Rank of Academic Leaders and Non Leader Faculty, by Gender

Rank	Academic Leaders ^a ***				Non Leaders ^b ***			
	Males		Females		Males		Females	
	n	%	n	%	n	%	n	%
Professor	237	75.5	47	49.5	953	47.4	146	20.5
Assoc Prof	64	20.4	27	28.4	597	29.7	225	31.6
Asst Prof	11	3.5	15	15.8	447	22.2	332	46.3
Instruct/Lecturer	2	0.6	6	6.3	13	0.6	10	1.4

^a compares male and female academic leaders

^b compares male and female non leader faculty

*** $p = .001$

Analysis of rank by gender in the academic fields revealed that three-quarters of the male academic leaders in Education were professors and nearly two-thirds of the females (65.5%) held the same rank (see Table 4.22). One quarter of the females (24.1%) were associate professors compared to 14.3 percent of their male counterparts. Only 10.7 percent of the males and 6.9 percent of the females were assistant professors, so were on the tenure track. One female academic leader was in the unusual category of Lecturer or Instructor.

The gender difference in academic rank in Arts and Sciences was statistically significant, $X^2(2, 264) = 23.41, p = .001$. Over three-quarters of the male academic leaders (77%), but less than half of the females (47.5%) held the same rank. Roughly 20 percent of the males (19.5%) and 30 percent of the females were associate professors. Fully 20 percent of the female academic leaders were on the tenure track in assistant professor positions compare to only 3.1 percent of the males. A total of two individuals were Lecturers or Instructors; one was male and the other was female.

Table 4.22 Rank of Academic Leaders, by Gender and Field

Rank	Education				Arts & Sciences***			
	Males		Females		Males		Females	
	n	%	n	%	n	%	n	%
Professor	21	75	19	65.5	174	77	19	47.5
Assoc Professor	4	14.3	7	24.1	44	19.5	12	30
Asst Professor	3	10.7	2	6.9	7	3.1	8	20
Lecturer/Instructor	0		1	3.4	1	0.4	1	2.5

*** $p = .001$

Summary of Academic Background and Status

This study was limited to academic leaders and faculty who had earned doctorates or professional degrees. Analysis of the variables for academic background and current status showed that 90 percent of the male and female academic leaders and slightly fewer than 90 percent of the male and female faculty had doctorates. The male academic leaders had a 12.5 year mean for time in their positions compared to 9.5 years for the female academic leaders.

The most significant finding was that 20 percent of the female academic leaders, but less than 6 percent of the male leaders were not tenured, but on the tenure track. This raises numerous questions about whether these leaders can reasonably perform the responsibilities of academic leadership while simultaneously maintaining the academic productivity required to earn tenure. Consistent with greater numbers of leaders not yet holding tenure, female academic leaders were more likely than male leaders to hold the rank of assistant professor.

Institutional Factors

Introduction

The next section covers the results of the analyses of variables related to the research universities themselves: public or private control, geographical location, enrollment, and percentage of under-represented minority students enrolled. For geographical location and university size, findings on the proportions of male and female academic leaders compared to faculty non-leaders of the same gender are also given.

Public or Private Control

There were no statistically significant gender differences in the public or private control of the universities where male and female faculty were employed. Table 4.23 shows that nearly 70 percent of both male (69.5%) and female faculty (68%) were at public universities and 30 percent at private institutions. Likewise, there were also no statistically significant differences in the institutional control of the universities where male and female academic leaders were located. Slightly over two-thirds of the male academic leaders (67.5%) and 58.9 percent of the female academic leaders were at public universities.

Table 4.23 Type of Institutional Control of Academic Leader and Non Leader Faculty Universities, by Gender

Control	Academic Leaders				Non Leaders			
	Male	%	Female	%	Male	%	Female	%
Public	212	67.5	56	58.9	1,410	69.8	496	69.2
Private	102	32.5	39	41.1	609	30.2	221	30.8

Disaggregating the data to consider academic field revealed that there was a statistically significant difference in Education. As shown in Table 4.24, over half of the female academic leaders (53.6%) in Education were employed at private universities compared to one-quarter of the males. This difference was statistically significant, $X^2(1, 56) = 4.79, p = .029$. Approximately two-thirds of each gender in Arts and Sciences were academic leaders at public institutions, a non-significant difference

Table 4.24 Type of Institutional Control at Academic Leaders' Universities, by Gender and Field

Academic Field	Public		Private	
	Male %	Female %	Male %	Female %
Education*	75*	46.4*	25	53.6
Arts & Sciences	70.1	63.3	29.9	36.4

* $p = .029$

Geographical Location

Women are less mobile for their careers than men (Phillips & Imhoff, 1997; Sagaria & Rychener, 2002; VanDerLinden, 2002), and female academic leaders are more likely to spend their entire careers at one institution (Sagaria & Rychener, 2002). This underscores the need to look at the geographical location of female academic leaders. At the time of the NSOPF survey, slightly over one-quarter of both the male and female academic leaders were at research universities located in the New England/Mideast region. Slightly under one-quarter of the leaders of both genders were at institutions in the Great Lakes/Plains areas. Roughly 20 percent of the male and female leaders were located at research universities in the Southeast and an additional 20 percent of both genders were in the Rocky Mountain and Far West universities. The remaining 10 percent were at universities in the Southwest. There were no statistically gender significant differences in this distribution pattern, nor in the distribution of the faculty non-leaders whose pattern mirrored that of the academic leaders.

There were interesting differences in the academic leader to faculty non-leader ratios in the geographical areas. The ratio for males was higher than the one for females in four out of the five regions, and two of these gender differences were statistically significant. Table

4.25 shows that the male leadership rate in the Great Lakes, Plains area was 19.6 compared to the female rate of 11.1 ($Z = 2.06, p = .04$). The difference in the leadership ratios was larger in the Southwest where the male rate was 17.2 while the female rate was 8.9 ($Z = 2.01, p = .04$). This rate was not only the lowest rate for all females, it was also the lowest ratio for both genders in all regions.

The highest female leadership ratio, and the highest ratio overall, was the 22.2 rate found in the Rocky Mountain, Far West region. The male rate was 18.2. The highest leadership ratio for males (19.6) was found in the previously mentioned Great Lakes, Plains region. The leadership rate for males was 17.5 in the New England, Mideast region where the rate for females was 13.7. The leadership rates in the Southeast were 12.9 for males and 12.4 for females.

Table 4.25 Geographical Location¹¹ of Academic Leaders and Leadership Ratios, by Gender

Region	% of Academic Leaders		Academic Leader to Non-Leader Ratio	
	Males	Females	Males	Females
New England, Mideast	27.4	25.3	17.5	13.7
Great Lakes, Plains	24.5	23.2	19.6 ^a *	11.1 ^a *
Southeast	17.8	22.1	12.9	12.4
Southwest	11.5	9.5	17.2 ^b *	8.9 ^b *
Rocky Mountain, Far West	18.8	20.0	18.2	22.2

^a compares Great Lakes, Plains ratios

^b compares Southwest ratios

* $p = .04$

¹¹ NCES used 1991 – 92 IPEDS data to classify NSOPF-93 institutions according to geographic region using the nine BEA (Bureau of Economic Analysis) region codes.

Institutional Size

Undergraduate and graduate student enrollments were combined to create total enrollment in order to investigate academic leader gender differences at research universities of varying sizes. Total enrollment ranged from 456 to 39,138 students. The enrollment mean of 17,023 for male academic leaders was larger than the 15,490 for female academic leaders, but this difference was not statistically significant. The mean enrollments for male and female non leaders were nearly identical, 16,848 and 16,794 respectively.

Analysis of enrollment sizes in the academic fields showed statistically significant differences in Education. The mean enrollment for female academic leaders was 13,242 compared to 18,280 for the male leaders, $F(1, 550) = 4.17, p = .046$.

Under-Represented Minority Student Enrollment

Finally, the percentage of under-represented minority undergraduate and graduate student enrollment was investigated to determine if there were differences in the institutions where male and female academic leaders and non leader faculty were employed. An ANOVA revealed there were no statistically significant differences in minority student enrollment between the male and female academic leaders.

Summary of Institutional Characteristics

Analyses of institutional characteristics showed that 60 to 70 percent of the academic leaders of both genders were at publicly controlled research universities. The female academic

leaders in Education were the one exception: they were slightly more likely to be at privately controlled institutions.

There were statistically significant geographical differences in the ratios of male and female academic leaders to the faculty non-leaders of the same gender. Both the Southwest and the Great Lakes and Plains regions had between eight and nine fewer female academic leaders per 100 female faculty non-leaders than their male counterparts. Though not statistically significant, the highest, and the only region where the female rate of female academic leaders exceeded the one for males was the Rocky Mountain and Far West regions.

CHAPTER SUMMARY of KEY FINDINGS

This chapter presented the results of the statistical analyses of the three categories of variables that underpin this study. These variables were based on Giddens' Structuration Theory and the literature, and include Personal Characteristics, Academic Background and Current Status, and Institutional Characteristics. Personal Characteristics included demographic information such as gender, age, racial background, marital status, and dependents. The educational backgrounds of the parents of the academic leaders and faculty also fell in this category. Academic Background and Current Status included academic field, highest degree, time in position, tenure status, and academic rank. Institutional Characteristics included type of control, geographical location, university size, and percentage of enrollment by students from under-represented minority backgrounds.

Data were analyzed to compare male and female academic leaders to male and female faculty who were not in leadership roles, to compare male and female academic leaders to each other, and to compare male and female academic leaders to male and female non-faculty leaders in the same academic fields. There were enough female academic leaders in Education to analyze it as an academic field. However, the numbers of female academic leaders in Natural Sciences and Engineering, Social Sciences, and Humanities were small so these fields were combined and called Arts and Sciences.

Two of the Personal Characteristics variables were of particular interest: marital status and parental educational degree attainment. Being married had a powerful impact, particularly for male academic leaders and faculty. Multinomial logistic regression found a gender and marital status interaction in an analysis predicting attainment of an academic leadership role.

Almost 90 percent of the male academic leaders were married compared to less than 60 percent of the female academic leaders. In the U.S. population aged 25 – 84 at the same time, almost three quarters of the males and nearly two-thirds of the females were married. The marriage rates for the female academic leaders varied by academic field. Almost two-thirds of the female academic leaders in Education were married. However, the rate for the female academic leaders in Arts and Sciences barely exceeded 50 percent.

Of particular note, while all variables in the study were analyzed for differences between the male and female academic leaders and the non-leader faculty of the same gender, only one variable differed at a statistically significant level. The marital rate of just over 50 percent

for female academic leaders in Arts and Sciences (51.2%) was significantly lower than the roughly 70 percent rate for female non-leaders .

The academic leaders and non-leader faculty came from families with parents who had higher rates of earning baccalaureate or higher degrees than the comparable U.S. population at the time. The impact of having at least one parent earn a bachelor's degree was more marked for the female academic leaders and faculty than for their male counterparts. Over half of the female academic leaders and non-leader faculty had at least one parent earn a bachelor's degree compared to approximately one-third of the male academic leaders and slightly more than 40 percent of the male non-leaders. Further, more of the mothers of female academic leaders and non-leader faculty had earned a minimum of a baccalaureate degree compared to 20 to 25 percent of the males.

Tenure status was an Academic Background and Current Status variable. Only faculty and academic leaders who had earned tenure or were on the tenure track were included in the study. The findings were that 20 percent of the female academic leaders did not have tenure but were on the tenure track. Only 7 percent of the male academic leaders were in the same position. Future study into how much assuming an academic leadership role at a research university could prematurely imperil earning tenure is needed.

Analysis of the Institutional Characteristics variable of geographical location revealed statistically significant differences in the gender ratios of academic leaders to the number of non-leader faculty in two regions. The Great Lakes and Plains region as well as the

Southwest had significantly lower representation of females than males per every 100 faculty. Also, the Southwest rate of 8.9 and Great Lakes and Plains ratio of 11.1 for females were also the two smallest leadership rates overall. The largest female ratio was 22.2 in the Rocky Mountain and Far West regions, though it did not differ at a statistically significant level than the male ratio.

Additionally, most academic leaders and faculty non-leaders were employed at public universities. The exception was that nearly 50 percent of the female academic leaders in Education were at private institutions which also had smaller mean enrollments.

In sum, all these findings shine light on the various facets of female academic leadership in 1993 and provide a baseline for additional study in later years. In sum, all these findings shine light on the various facets of female academic leadership in 1993 and provide a baseline for additional study in later years. The next chapter will discuss key findings and apply Giddens' Structuration Theory to explain them.

CHAPTER FIVE

DISCUSSION and CONCLUSION

Introduction

This study examined personal (demographic), academic, and institutional differences between male and female academic leaders at research intensive universities. These academic leaders were all full-time faculty with regular appointments who were tenured or on the tenure track. This chapter revisits and discusses the key findings of the study, and considers implications for theory and practice. Limitations of the study are presented as are suggestions for additional study in the future. It ends with a conclusion of the study.

Review of Study Approach

Data from the 1992-1993 National Survey of Postsecondary Faculty (NSOPF-93) were used to examine whether differences existed between male and female academic leaders at research intensive universities. Gender and academic field were used as the organizing factors to analyze variables. The variables were identified in theoretical and empirical literature, and were classified in three categories: personal characteristics, academic background and status, and institutional characteristics. Analysis was also conducted to determine whether differences existed between the male and female academic leaders and the faculty of the same gender who were not in academic leadership roles. Analyses exploring differences between male and female academic leaders in their academic fields were conducted when possible.

Portrait of Female Academic Leaders in 1993

The female academic leaders averaged 50 years of age and 85 percent were white. Less than 60 percent were married which was far below the 90% marital rate of the male academic leaders, and below the average for U.S. women in the same age range at that time (63.8%). However, almost two-thirds (65.5%) of the female academic leaders in Education were married. Slightly less than half of the female academic leaders had dependents (48.4%), although over half of the female academic leaders in the field of Education (58.6%) had dependents.

The academic leaders came from highly educated families of origin. Over half of the female academic leaders reported that at least one of their parents had earned a bachelor's degree or higher, and in that group, almost one-third reported that their mothers had earned these degrees. In comparison, slightly more than one-third of the male leaders reported at least one parent had earned a baccalaureate degree and only 20 percent of their mothers had earned bachelor's degrees. Among academic leaders born after the GI Bill granting educational benefits was enacted after WW II, fully three-quarters of the females and 60 percent of the males reported at least one parent had earned a minimum of a bachelor's degree.

Although 80 percent of the female academic leaders were tenured, almost 94 percent of the male academic leaders held tenure. Mirroring the academic ranks of the faculty, the females were less likely than the male leaders to be full professors: less than 50 percent of the females were professors, compared to over 75 percent of the males. Additionally, 15.8

percent of the female leaders held the rank of assistant professor, compared to less than 5 percent of the males. This sketches a risky region for female academic leaders who hold the additional responsibilities of academic leadership while simultaneously trying to earn tenure in a system that prizes research productivity.

The female academic leaders had been in their leadership roles an average of 9.5 years. Their median, however, was 8 years, indicating a more recent influx of women into academic leadership positions.

Female academic leaders were more likely to be employed at public universities (58.9%), although just over half of the female leaders in Education (51.7%) were at private institutions. Geographically, the highest proportion of female academic leaders to female faculty (22.2) were at universities in the Rocky Mountains/Far West, followed by those in New England/Mideast (13.7), Southeast (12.4), Great Lakes/Plains (11.1), and Southwest (8.9). The gender differences in proportions of the last two were statistically significant.

Discussion

This study had a particular focus on two variables, marital status and parental college education. Following is a discussion of each variable.

Marital Status (and Dependents)

Marital status has a powerful and differential impact on male and female academic leaders. A 2012 American Historical Association study revealed that marriage continues “to speed

up the advancement of male historians but slow down that of female historians” (Jaschik, 2013). Perna (2005) found that female faculty who were married were more likely to have part-time non-tenure track positions. A previous Perna study (2001) reported that in four-year colleges and universities, having dependents was a significant predictor of gaining tenure for male faculty. Also at four year institutions, male junior faculty who had at least one child were more likely to have full-time tenure track jobs. Additionally, career disruption has a deleterious effect on gaining tenure or other promotions. Female faculty are more likely than male faculty to take breaks in their careers, largely to accommodate pregnancy and child-rearing (Conley, 2005; McElrath, 1992; Reagan, 1975).

These findings were amplified for female academic leaders. Female academic leaders are more likely than their male counterparts to be divorced (Hensel, 1997). Having children was identified as a barrier on the path to the presidency of all institutional types for female faculty, but not males, and 25 percent of female college presidents modified their jobs to accommodate their children compared to only 2 percent of the male presidents (Corrigan, 2002). Movement into academic leadership roles was delayed or more difficult for female faculty who later attained those positions (Gerdes, 2011, Mason & Goulden, 2004).

This study does not answer why marriage remains such a powerful factor, but Giddens’ Structuration Theory (1976, 1979, 1984) would suggest that a blend of personal and structural factors, including social mores, create a dialectic tension that shapes and constrains choice. In other words, if marriage is the traditional social more, namely a structural factor, both males and females experience the expectation to marry. When males

have traditionally held most academic leadership roles, females experience more barriers to attaining the same type of roles, and may then make the choice (agency) to relegate marriage to a lower priority, thus delaying or foregoing it as they work to attain faculty and academic leadership positions. Delaying or sacrificing marriage often impacts having children, and the female academic leaders in the study were less likely to have dependents than their male counterparts.

Nearly twenty years have passed since the data used in this study was collected, but the passage of time has not ameliorated the problem. Indeed, in addition to greater social acceptance of people living together in marriage-like relationships, legalization of same-sex marriage will likely make the issue of marital status more complex than it was in 1993. Fain (2010) reported a small group of openly gay and lesbian college presidents convened to form an advocacy group in 2010, something that would most likely have been unthinkable in 1993. After the 2012 elections, 12 states have legalized same-sex marriage, though this does not insure immediate general social acceptance of it. Although it is probable that acceptance of higher profile academic leaders living in relationships outside marriage or in same-sex marriages will become permissible more slowly than couples in the general public, these changes hint of increasing freedom in the future for female academic leader to marry someone of either sex,

Setting aside theoretical explanations and speculation, substantive concerns require attention to policy. It is essential to have policies that help manage work and family demands. These include on-campus child-care, flexible schedules and leave, employment assistance

programs for spouses, and recognition that there may also be needs to care for aging parents. However, institutional acknowledgement that these things are needed does not guarantee they will be provided. A 2000 study of 360 colleges and universities found that 85 percent reported they would do things to help faculty manage work and family demands. Only 24% reported having formal policies (Wolf-Wendel, Twombly, & Rice, 2000).

However, developing and implementing policy alone is not enough. The underlying social expectations and structure are clearly pervasive and powerful. Further, the goals are not to make the needs and demands of marriage and family disappear, instead it is to find the most equitable ways to accommodate the demands of work and family for everyone, and for a leveling to occur so that the benefits and privilege male faculty and academic leaders receive are also accorded to females, single people, and those in same-sex relationships. Public acknowledgement and discourse are important in concert with policy which is essential.

Various forms of discourse can diminish the unacknowledged benefits from things like “daddy privilege, wherein fathers are praised when family commitments encroach on work demands, but mothers in similar situations are subject to bias against caregiving” (Drago & Colbeck, 2003). Additionally, male managers in higher education who used aspects of femininity that made them seem caring managers are rewarded while women doing so are viewed as doing what they are expected to do (Skeggs, 2004, p. 55). Universities need to treat these issues as worthy of consideration. Additional research is needed to understand the penetrating nature and dynamics of the marriage and dependent privilege accorded only

to males, as well as to the he privilege males receive, but women do not, for acting in caring, feminine ways.

The Impact of Parental Education

The educational levels of the parents of the academic leaders are particularly important for female academic leaders. The 1993 female academic leaders averaged 50 years of age, and half were born before 1943, thus before enactment of the GI Bill with its consequent educational benefits for their fathers. Yet over half of all female academic leaders, not just those younger than 50 years of age, had at least one parent who had earned a bachelor's degree or higher. These results are consonant with Walton and McDade's findings that female chief academic officers came from families where half of their parents had earned college degrees (2001). This study shows that these rates for female academic leaders are significantly higher than those of the parents of the male academic leaders (36.2%), but also that nearly one-third of the parents with degrees were the *mothers* of the leaders.

Giddens' Structuration Theory (1976, 1979, 1984) explains these exceptionally high rates by suggesting that the parents had broken real or perceived barriers to higher education, thus creating an environment in which earning these degrees ranged from merely possible to being a standard expectation for their children. This aligns with Bourdieu's theory of cultural capital, explained as the property that middle and upper class families transmit to their families which substitutes or supplements the transmission of economic capital as a way to maintain status and privilege (1977a). In terms of education, middle and upper class parents value higher education as a way to insure continued economic security and

consequent status and transmit this to their children (Bourdieu & Passeron, 1977). As children internalize this, it shapes how they view and experience the world, and influences what they expect of it. Bourdieu terms these belief systems as their “habitus” (Bourdieu 1997b).

Although the relationship between a parent earning a bachelor’s degree and their female child later attaining an academic leadership role at a research intensive university is not causal, there are some interesting possibilities. Even though the numbers of people earning baccalaureate degrees has grown immensely -- 1,650,014 bachelor’s degrees were awarded in 2009-10 with females earning 57.2% of them (Chronicle Almanac 2012) – there are still potential academic leaders in the current and future ranks of faculty who are the first in their families to attend college.

First generation college students and faculty students are more likely to come from working class backgrounds, or from other under-represented groups, particularly racial and ethnic minority groups. They are also likely to come from low-income families (Choy, 2001; Padgett, Johnson, & Pascarella, 2012). In 2011, over half of the U.S. citizens or permanent residents who earned doctoral degrees were female, almost 20 percent were first generation students, and 25 percent identified themselves as racial minorities (National Science Foundation, 2011). A small fraction of these graduates will join the faculty ranks at research intensive universities, but the insight and skills they might bring to academic leadership roles will likely remain untapped unless there are conscious efforts to encourage and support

them into these roles. Indeed, much can be lost when potential capable academic leaders lack the cultural capital and habitus even to aspire to leadership roles.

Potential Disconnections: Aspirations and Recruitment to Academic Leaders Roles

Women attracted to leadership roles in two-year colleges want to make a difference for others (Long, 2008). Grogan and Shakeshaft (2011) identified female principals and superintendents whose leadership type they classify as spiritual leadership. A survey of senior female faculty holding presidencies, vice-presidencies, deanships, and other academic leadership roles across all institutional types, revealed that most wanted to serve or make a difference for others in higher education (Gerdes, 2011). Perhaps more common among women from under-represented minority backgrounds, these leaders describe a deep passion for what they do, and a sense of calling to their work as educators and leaders. If these are accurate descriptions of some of the motives for women to become academic leaders at research universities, they will experience conflict with motivations and leadership of their male academic leader counterparts. Improving the university to make it better for others is a very different narrative than the one of leaders being successful CEOs who make the tough decisions with diminished regard for how people's lives are affected (Grogan and Shakeshaft, 2011). The motivation to change the university to make it better can also be less important to male leaders who have already experienced more benefits from the university system, including the hidden, but substantive benefits of marriage and dependents.

There are also differences in how female faculty and academic leaders are socialized to academe. "Women more likely to have collegial networks of peers to provide social and

emotional support. Men have networks that include high status individuals, and use these networks to obtain job-related information and opportunities for professional advancement” (Milem, Sherin, and Irwin, 2001). Further, women faculty with an academic spouse or partner did not receive the information from them that the males had gained from their own socialization experiences (Ferber & Hoffman, 1997).

Although these descriptions do not fit all female faculty and academic leaders, they do underscore the likelihood that women may have different reasons for pursuing academic leadership roles, and also that the relationships and networks they develop are based on emotional needs, and not professional and career advancement. Since recruitment for academic leadership roles often remains informal, with a tendency for current leaders to recruit potential leaders of the same gender (White, Carvalho, & Riordan, 2011), it is essential for there to be ways for women to gain access to the same types of knowledge and institutional lore that men are more likely to receive.

Additional Disconnections: Career Path and Geographical Constraints

Career paths and geographical constraints are factors that create barriers for female academic leaders. In terms of Structuration Theory, the traditional career path for faculty and academic leaders is an institutional factor while geographical location is a personal (demographic) factor reflecting the dialectic between agency and social structure.

The standard career path through faculty ranks and academic leadership roles is sequential, incremental, and hierarchical (Dominici, Fried, & Zeger, 2009; White, Bagihole & Riordan,

2012). This linear career ladder is more likely to describe the male career path while outside academe, women's patterns are more diverse (O'Neil, Hopkins, Bilamoria, 2008). Rather than a career path solely aimed at upward mobility, women's paths are often more "zigzag" (Gersick & Kram, 2002, p. 31) interspersing upward mobility, downward mobility, and fluctuation (Hurley & Sonnenfeld, 1997), often reflecting that women "do not make career decisions in a relational vacuum" (Blustein, 2004, p. 605). Relational dynamics, including the nuclear family and family of origin issues (Motulsky, 2010) are "frequently devalued and disregarded in favor of more autonomous approaches (Schultheiss, Kress, Manzi, & Glasscock, 2001, p. 216). Eagly and Carli (2007) describe the pathway to leadership positions for women as a labyrinth. It is a difficult path with visible and invisible barriers. It "requires persistence, awareness of one's progress, and a careful analysis of the puzzles that lie ahead.... Routes [to leadership] exist but are full of twists and turns, both unexpected and expected" (p. 64).

Structuration Theory (1976, 1979, 1984) would rightly predict that academe will not suddenly change its linear strategy for career advancement to accommodate the female faculty and academic leaders for whom that model is not a fit. Still, some female academic leaders find the labyrinth metaphor useful (Berkelaar, Pope, Sypher, Cox, 2011). It serves as a reminder that obstacles to career progression are both visible and invisible, and that there are even more obstacles to progress through leadership roles. It affirms the extra work and persistence often required of women to succeed within the system. Even if a labyrinth has only one path to the center, finding the center is possible (Eagly & Carli, 2007).

The structure versus agency tension in Structuration Theory would also predict that the path for achieving tenure and moving through academic leadership roles is ultimately dynamic. Modification may be slow, but extending the time clock for some assistant professors due to addition of a child and medical leave is an example of one way the path has already been modified by highlighting underlying assumptions with the actual challenges faced by some junior faculty.

Geographical location is another important factor since women are less mobile for their careers than men (Phillips & Imhoff, 1997; Sagaria & Rychener, 2002; VanDerLinden, 2002), and female academic leaders are more likely to spend their entire careers at one institution (Sagaria & Rychener, 2002). This underscores the need for institutions to identify potential female academic leaders and support their development, particularly through mentoring.

The results of this study revealed some disciplinary differences female academic leaders in Education and those in other disciplines. The next section explores the female academic leaders in Education.

Is Education More Traditional or an Outlier?

The patterns of female academic leaders in Education sometimes varied from those in Arts and Sciences. They were far more likely to be married (65.6% of the female academic leaders in Education, compared to 51.2% of the female academic leaders in Arts and Sciences). They were more likely to hold the rank of full professor (65.6% in Education and

47.5% in Arts and Sciences), and they were more likely to be located at a private university (53.6% in Education and 36.4% in Arts & Sciences). This was not a predictive study, but Structuration Theory allows informed speculation on why these differences exist.

Education has been a more traditionally gendered profession and academic field which make it the most likely field for women academic leaders to emerge first. One factor is availability and the number of women earning doctorates in Education has increased dramatically in the last 50 years. According to the Survey of Earned Doctorates, women earned under twenty percent (19.1%) of all Education doctorates in 1966, and increased to nearly one-third (32.9%) of Education doctorates only 10 years later. Women have earned over half of all doctorates in Education since 1984, increased to over 60 percent in 1994, and over two-thirds since 2002 (National Science Foundation, 2010).

Earning a doctorate does not equate into tenured faculty roles at research intensive universities, and a recent study on the gendered nature of published academic authors provides an interesting proxy. Jacquet, West, and Bergstrom identified the gender of the authors of over two million JSTOR¹² works in a number of academic disciplines from 1665 to 2011. From 1665 to 1970, women published 20.7 percent of all scholarly articles in Education and increased to 31.8 percent between 1971 and 1990. Between 1991 to 2010, women published 46.6% of articles published in Education (West, 2012). Since publication is an essential element of faculty work at research universities, these increases in

¹² JSTOR is an electronic storage system of journal articles from most natural sciences, social sciences, law, history, philosophy, and education. It has limited coverage of engineering, English, foreign languages, and physics.

publications reveal consistency between the type of work required in faculty roles and the work women were doing.

Structuration Theory provides a useful model for explaining this has happened. Education has long been a highly gendered field with teaching being an acceptable career for young women to pursue. The normal schools, developed in the 1830s as an alternative to secondary schools and colleges, were designed to prepare students for teaching in elementary schools. Female enrollees outnumbered male students, particularly at the private institutions. The number of graduates who did not become teachers indicated that some students attended in order to receive advanced education, and normal colleges paved the path for co-educational colleges. When the University of Iowa opened in 1856, 32 of the 41 females enrolled in the first class were in the normal or preparatory department (Clifford, 1993). Hence social and structural resistance to female students in higher education was mediated earlier than most other fields. In addition to the gendered nature of teaching, women's earlier entrance into college as students, and then permeation into faculty and academic leadership means there has been more time for them to reach senior faculty status.

Affirmative Action

Non-discrimination legislation, the Equal Pay Act of 1963, and the Civil Rights Act of 1964 collectively required federal employers not to discriminate against employees or job applicants on the basis of race, creed, color, or national origin. Affirmative action was first mentioned in Executive Order 11375 signed in 1968, and gender was first included in 1970 and 1971 when the Labor Department required federal contractors to develop written

affirmative action plans for women and minorities. The Department of Health, Education, and Welfare published the Higher Education Guidelines in 1972, outlining policy areas affected by affirmative action, including recruitment, hiring, job classification, salaries, awarding back pay, and grievance procedures (Hanna, 1993). Also enacted in 1972, Title IX prohibited discrimination on the basis of gender in federally assisted education programs. Organizations were required to develop affirmative action plans, state their policies, disseminate them, and implement them (Hill & Raglund, 1995).

Controversial from the start, the extensive backlash against affirmative action's laws and policies largely centered on racial background and job or educational opportunities (Flores & Rodriguez, 2006). The term "reverse discrimination" was coined in the 1978 case of Bakke versus the University of California. The U.S. Supreme Court ruled that admission quotas were unconstitutional, but that race could be used for admission purposes as part of affirmative action programs (Post & Rogin, 1998). In two later higher education cases in 2003 involving the University of Michigan, the Supreme Court ruled that race sensitive admissions policies were constitutional when the state has a compelling interest in assuring diversity in the student bodies of state-sponsored schools (Crosby, Iyer, & Sincharoen, 2006). These decisions were expected to stand for several decades, but in 2012, the Supreme Court agreed to hear a case against race-conscious admission at the University of Texas (Liptak, 2012), even though the 1996 Texas state legislature had previously banned the use of race in college admissions. A uniform admission law was enacted, guaranteeing admission to public universities to Texas high school seniors graduating in the top 10% of their class. Additional factors such as socioeconomic status and evidence a student has

overcome adversity can be considered for students not in the top 10% of their high school classes (Long & Tienda, 2008). The decision on the 2012 case is currently pending.

Amidst the controversies and lawsuits, and spite of persisting sexism (Crosby, Iyer, & Sincheron, 2006), white women have had “a much easier time finding a place in the academy...” (Cooper, 2002, p. 60), and women of color faced even greater struggles to gain respect (Arrendondo, 2011; Cooper, Benham, Collay, Martinez-Aleman, & Scherr, 1999; Ideta & Cooper, 1997; Rains, 1999). Indeed, this study itself reflects this as the number of women of color in academic leadership roles was too small to conduct meaningful statistical analyses.

Although women collectively remain under-represented in faculty and academic leadership roles, they may not be perceived as being under-represented. In a study of faculty attitudes toward affirmative action principles¹³, the gender balance was considered adequate even though females made up only 26 percent of the faculty. Female faculty colleagues were viewed as highly productive though intentional recruitment of females for open faculty positions was not endorsed due to concerns that qualified white males might be disadvantaged in the hiring process (Flores & Rodriguez, 2007).

¹³ Since the term “affirmative action” is emotionally charged, it was not used in the study. The study defined diversity as “race, color, religion, national origin, sex, sexual orientation, age, or disability (Flores & Rodriguez, 2007, p. 306).

Skewed perceptions on the number of female faculty members in the natural sciences are addressed by “Female Science Professor¹⁴” who recently wrote that when three or more women are gathered to work, stand, or sit together, it creates an event worthy of comment, usually negative. Some of her anecdotal examples include the belief that three female scientists listed as principal investigators on a grant proposal was too many women for one project, and that having three female faculty on a search committee of six meant “there are more women than men!” (Female Science Professor, January 2, 2013).

Despite perceptions, a study on faculty retention predicts that it could take nearly 100 years before half of the professors in science, technology, engineering, and mathematics (STEM) are female. The length of faculty careers adds to the time needed, but also failure to retain female faculty, particularly in the pre-tenure years (Kaminski & Geisler, 2012

Study Limitations

There are several limitations to this study. First, the NSOPF-93 survey was designed to learn more about faculty, and not to solicit specific information on academic leaders. In addition to merely identifying the academic leaders in the faculty pool, questions about leadership were not asked.

¹⁴ Female Science Professor is the pseudonym used by a physical sciences professor at a research intensive university.

The study is also a “snapshot” measure at a certain point in time. There is value in this type of information and measure, particularly since there are large numbers of faculty respondents. Yet the “why” questions were not asked, and answers can only be theorized. The number of female academic leaders was small, and there were almost no minority academic leaders of either gender. This limited how much analysis could be done based on academic field, and also that female academic leaders in disparate disciplines were combined to permit statistical analysis. This limits generalization, especially for minority female academic leaders.

The data were dated. Given that the data from this study is from 1982, this study can provide a baseline measure for future research using more recent data.

Future Inquiry

This study raises many questions for additional study. What has happened to the women who were academic leaders in 1993? What happened to the women who held academic leadership roles before they earned tenure? What picture emerges from the female assistant professors who later moved into academic leadership roles? Have more women from under-represented minority backgrounds moved into academic leadership roles? What impact has the Family and Medical Leave Act enacted in 1993 had on female academic leaders?

There is a need for study to how the reduction of tenure track jobs and increasing numbers of part-time positions affect who moves into academic leadership roles. In 1989, 64 percent

of all faculty were full-time, but this dropped to 51 percent in 2009 (National Center for Educational Statistics, 2013). By 2008, over 41 percent of faculty were female, but only 27 percent were professors, 41.1 percent were associate professors, and 47.4 percent were assistant professors. Over half of all instructors (54%) and lecturers (52.8%) were female (Chronicle 2010).

A trend in faculty composition merits research for its impact on future academic leaders: the increase in full-time non-tenure track faculty. Although research intensive universities have more full-time faculty than other institutional types (Kezar & Moxley, 2012), and 54.6 percent held tenure or were on tenure track positions in 1997, less than half (48.9%) were in tenure or tenure-track positions in 2007. Full-time non-tenure track faculty increased 38.2% between 1997 and 2007 (American Federation of Teachers, 2009). Although the gender breakdown for full-time non-tenure track faculty is not yet available, it is more likely that women will be over-represented. Regardless of gender, increases raises important questions on who will become the future academic leaders, particularly since the tenure and tenure-track positions seem to be concentrated to allow faculty to conduct research, publish, and focus on graduate education (Cross & Goldberg, 2009).

Other areas for additional study were mentioned in the discussion. They include study on the relationship between post-secondary education of faculty parents and faculty interest and attainment of academic leadership roles, women of color in academic leadership roles, and disciplinary differences in academic leadership roles, particularly in STEM fields.

Conclusion

In the early 1970s, nearly 20 years before the NSOPF-93 data was collected, only 10 percent of professors, 20 percent of associate professors, and one-third of the assistant professors were female. When the data used in this study were collected, 17 percent of the professors, 30 percent of the associate professors, and over 40 percent of the assistant professors were female. In 2008, over a quarter of the professors, 40 percent of the assistant professors, and nearly half of the assistant professors were female.

When the NSOPF-93 data was collected, no woman had been president of an Ivy League university. Judith Rodin broke that barrier in 1994 when she was named the first permanent female president of the University of Pennsylvania. In 2001, Shirley M. Tilghman became the first female president of Princeton, and Ruth Simmons became the first female president of Brown, and first African American president of an Ivy League university. Although not an Ivy school per se, Susan Hockfield became the first female president of MIT in 2004, and in the Ivy League, Amy Gutman succeeded Judith Rodin at Penn. Drew Gilpin Faust was named the first female president of Harvard in 2007.

Three of these presidents announced their retirements in 2012: Drs. Simmons, Hockfield, and Tilghman. Christine Hull Pearson has already succeeded Dr. Simmons at Brown, and Carol L. Folt was named the first female president of Dartmouth. Dr. Tilghman hopes that gender will be a non-issue in hiring her successor (Stripling, 2012, September 22).

Perhaps this will be the case since Ivy League universities reached gender equity in their presidents in 2004, but gender equity has not been the case for presidents and other academic leaders at research intensive universities and in academe generally. This study provides information about female academic leaders at research intensive universities in 1993, and there has been progress for women since then. Consistent with Structuration Theory, the progress has been marked by consistent struggle between agency, social and institutional structure, and the dialectic between them.

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