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Pepperdine University
Graduate School of Education and Psychology

GENDER EQUALITY WITHIN THE AEROSPACE AND DEFENSE INDUSTRY

A dissertation submitted in partial satisfaction
of the requirements for the degree of
Doctor of Education in Organizational Leadership

by

Shreyas Gandhi

June, 2009

This dissertation, written by

Shreyas Gandhi

under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

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June 1, 2009

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DEDICATION

To my wife, Dr. Swati Gandhi, for her unwavering support, and to my two beautiful sons
Shyam and Ram.

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ABSTRACT

Three of America's largest aerospace and defense companies (ADC1, ADC2, and ADC3) have major operations in the Los Angeles region of Southern California. This study focused on a single aerospace and defense company, ADC1. In the broader population of ADC1, there are almost as many females (45%) as there are males. However, of the 19 members of ADC1's leadership team for its Southern California region-based division, as of October 2008, less than 16% were women.

The purpose of this qualitative study was to understand what it is like to be a female senior executive leader in the male-dominated aerospace and defense industry. The study helped to develop an understanding of the lived experiences of female executives, to learn how they achieved this level of senior leadership, and to understand what it is like for them to be a small minority at the senior executive level.

In-depth interviews were conducted with four female executives employed by ADC1. Before the interviews, each participant completed a Leadership Practices Inventory (LPI) Assessment and answered demographic questions. The standard deviation and range for the 4 female executives were higher on the practice Encourage the Heart, and the standard deviation and range were markedly higher in the category Challenge the Process.

The interviews were conducted using a 12-item questionnaire designed for this study. Key attributes and common themes emerging from the interviews were analyzed using a coding system and were described in detail. Notably, all four executives cited being collaborative, inclusive, and building relationships as key attributes that they feel contributed to their career success. These attributes can be applied by all aspiring leaders,

regardless of gender. Female leaders also indicated that they aspired to move into executive leadership roles but were faced with personal and professional barriers, including the lack of a support system in balancing the needs of a career and family.

Based on these findings and on the researcher's recommendations for the aerospace industry, the researcher recommends that ADC1 conduct an LPI assessment across a broader population of executives. Additionally it is recommended that ADC1 separately review gender diversity during its annual HR review process.

Chapter 1.

Introduction

The topic of gender and leadership has become increasingly popular during the past 3 decades. According to Chemers (as cited in Northouse, 2007), academic researchers ignored issues related to gender and leadership until the 1970s. The conversation has since shifted from whether women can lead, to the biases associated with women rising up the corporate ladder: “Several meta-analyses and reviews of leadership research indicated very few differences between male and female leaders” (p. 292).

Women’s corporate and political leadership is on the rise; however, there is still a distinctly notable and somewhat alarming gender gap (Catalyst, 2005). According to the United States Bureau of Labor Statistics (2005), women held half of the management, professional, and related occupations in 2004. In 2005 they led 7 *Fortune* 500 companies and 10 *Fortune* 501–1,000 companies (Catalyst, 2005). In 2007, women constituted 14% of the Congress of the United States and 12% of state governors. Recently, there have been elite and high profile leadership positions filled by women such as Nancy Pelosi, Speaker of the House; Indra Nooyi, CEO of PepsiCo; Dr. Wanda Austin of the Aerospace Corporation; and Drew Gilpin-Faust, President of Harvard University.

These advances for women are reflective and indicative of the evolving context of females in corporate and political leadership; however, men still occupy far more positions that confer “decision-making authority and the ability to influence others’ pay or promotions” (Eagly & Carli, 2003, p. 809). Research is still being conducted to determine the extent of this. While women “have gained increased access to supervisory

and middle management positions, they remain quite rare as elite leaders and top executives” (Eagly & Karau, 2002, p. 573). This discrepancy has generated a question that has plagued leadership scholars and feverishly driven contemporary research efforts: Why does this gender gap exist?

Contemporary approaches to gender and leadership involve understanding style and effectiveness differences among men and women in leadership positions. “Gender biases are no longer overt, but more often take the form of subtle and implicit preconceptions and discrimination” (Northouse, 2007, p. 281).

Although research studies focusing on females as leaders have expanded greatly since the 1970s, this topic still remains greatly understudied (Lowe & Gardner, 2001). Literature suggests that gender differences in leadership styles have important and significant theoretical and practical utility, and as such, researchers are calling for studies to explore this further. Additionally, a survey of the literature indicates that the topic of gender equity, unlike cultural diversity, is rarely if ever taught in K-12. At the college level, sexual harassment training appears to be the only significant gender equity discussion that occurs in core curricula. This paper will review the evolution of leadership theory as it applies to women. Next, role congruity theory will be examined as a possible explanation for the cultural expectations of women. Then the current reality for women will be examined by exploring the evidence for and against the existence of the glass ceiling. The literature review offers a scholarly view into the pursuit, inquiry, and investigation of the gender equality in leadership, primarily in the male-dominated aerospace culture.

The study will focus three of America's largest aerospace and defense companies with major operations in the Los Angeles region of Southern California. The companies include Aerospace and Defense Company 1 (ADC1), Aerospace and Defense Company 2 (ADC2), and Aerospace and Defense Company 3 (ADC3). They each employ in excess of 70,000 people worldwide, and have annual revenue in excess of \$20 billion per year. The Department of Defense is a major customer for all three companies, and their primary growth strategy has been growth by acquisition. For purposes of this study, examples and observations will be taken from a single aerospace and defense company, ADC1.

Statement of Problem

All three companies, ADC1, ADC2, and ADC3 have large, well-balanced employee populations. There are almost as many females (approximately 45%) as there are males in the broader population of the Southern California region-based ADC1 organization. However, executives in senior leadership positions are not representative of the broader population. Of the 19 members of ADC1's leadership team (for its Southern California region-based division), as of October 2008 only 3, or less than 16% were women (Appendix A). A search of ADC2's executive council (top 32 leaders across the company) yields only 2 who are women (< 7%). And last, ADC3's top leadership team, composed of 7 executives, has only 1 female (< 15%).

Furchtgott-Roth (1998) noted, since 1982, women have earned more than 50% of all bachelor's degrees and all master's degrees, yet they lead less than 2% of *Fortune* 500 companies. The majority of top officials of major aerospace corporations are males and only about 13% of their managers are women (Aviation Week & Space Technology,

2001). According to Tacawy (2006) literature supports the belief that women are hindered from progressing to top positions simply because of their gender.

Porter (2002) cites Secretary Robert Reich's, chairman of the Federal Glass Ceiling Commission, view on the existence of a glass ceiling. He states that the glass ceiling is a setback that effects women and minorities and is considered to be a serious economic problem negatively affecting businesses in the U.S. Companies may be unable to compete in a continuously diversifying marketplace if they continue to exclude qualified women from upper-management positions.

Catalyst's (2008) research on *Fortune* 500 companies also points to this issue:

Organizations with the greatest gender diversity in their corporate office ranks significantly outperformed companies with proportionately fewer women at the top. Return on equity was 35.1% higher in the most gender diverse companies and total return to shareholders 34.0% higher (p. 5).

Senior leadership teams across all major aerospace and defense companies do not represent the broader population at their respective companies, and a *Flight International* article states, "Traditionally this industry has been male-dominated, but there is no-factual reason why women can't do as well or better than men" (Moxon, 2004, p. 33).

Purpose of the Study

The purpose of this study is to understand what it is like to be a female senior executive leader in the aerospace and defense industry. This study will help to develop an understanding of the lived experiences of female executives, to learn how they achieved this level of senior leadership, and to understand what it is like for them to be a small minority at the senior executive level. This study may result in policy recommendations

for these companies to ensure adequate professional development and career opportunities are provided to all employees.

Research Questions

In order to achieve the goals of this study, two research questions have been developed to determine the following at ADC1:

1. What are the leadership ratings of the four female executive leaders at a single major aerospace and defense company (ADC1), as measured by the Leadership Practices Inventory (LPI)?
2. How do the four female executives at ADC1 describe their career paths, including their educational experiences; their leadership styles; the personal or professional obstacles they may have encountered along the way; and the behavioral expectations placed on them as female executives?

Operational Definitions

Organizational culture. The concept and definition of organizational culture has been debated for years. The purpose of this paper is not to argue the definition of culture, but rather to explore factors that lead to an organization's effectiveness. For the purpose of this paper, culture will be used to denote Schein's (2004) ideational view:

Culture is both a dynamic phenomenon that surrounds us at all times, being constantly enacted and created by our interactions with others and shaped by leadership behavior, and a set of structures, routines, rules, and norms that guide and constrain our behavior. (p. 1)

Aerospace and Defense Industry. Industry concerned with manufacturing commercial and military aircraft, spacecraft, satellites, sensors, radar, and missile design and production.

Attraction. People are differentially attracted to careers as a function of their own interests and personality (Holland, 1985). Other signs of attraction are researched by Tom (1971) and Vroom (1966). They stated that people search environments that fit their personality and that people would like to obtain their outcomes by selecting a specific organization.

Corporate ladder. The hierarchical order of position, title, or rank, as in a large corporation.

Career path. In aerospace and defense there are three distinct paths: Individual contributor, leading to a role as an engineer or technical fellow; Project management, including integrated product development team lead, and program management responsible for profit and loss; and Functional management, including supervisory roles, section management, department management, and center management.

Executive-level management. A person who is at least a vice president responsible for a functional area, business area, mission area, or sector.

Gender discrimination. Subtle or ambiguous harmful actions affecting career progression, and/or culture in which racism and sexism is common.

Glass ceiling. A term used to describe artificial or invisible barriers that prevent qualified individuals from advancing within their organizations.

Major operations. Company operations with at least six executive officers, a workforce in excess of 5,000 people, and revenue in excess of \$4 billion.

Male-dominated industry. Industries such as engineering, business management, law, finance, or accounting that have been traditionally the domain of men, contrary to

primarily female-dominated professions, including nursing, teaching, social work, administration, communications, or librarianship.

Selection. Organizations select people who they think are compatible for many different kinds of jobs. In that way, organizations end up choosing people who share many common personal attributes, although they may not share common competencies.

Stereotyping. A fixed or general pattern, especially a standardized picture that is held in common by members of a group and that represents an oversimplified opinion, prejudiced attitude, or uncritical judgment (Tacawy, 2006).

Limitations of the Study

This study has been designed with the following limitations:

1. This study will involve only a small subset of female senior executives in a male leadership–dominated corporate culture at a single aerospace and defense company with major operations in Southern California (ADC1). Findings will pertain to this specific subculture within this single aerospace and defense company.
2. As theories will be derived by evaluation of a single corporate culture, further evaluation and study of additional corporate cultures is recommended.
3. Although the identities of the female executives who participated in the study will remain confidential, including the identity of their employer, because of the small population of female executives at ADC1, they might not be willing to disclose fully their experiences for fear of their identities becoming known.
4. Because of the utilization of a convenience sample, the findings, as derived from the LPI assessment, and in-depth interviews may not be indicative of the

5. Even though the interview questionnaire was validated by both a panel of experts and a pilot study, and even though the questions posed are open ended, in trying to be consistent with the interview questionnaire, the amount of information collected was limited.
6. The environment of the research needs to be considered. In a research environment, the participants are assumed to respond candidly. However, when subjects become involved in a study, particularly after signing an informed consent form, it is possible the natural behavior was modified, and that could impact the results.
7. Researcher bias needs to be taken into consideration. This entire study focuses on the lived experiences of female executives within the aerospace and defense industry. The researcher is neither a female, nor an executive. The only constant is the researcher is an active employee at a major aerospace and defense company with significant operations in Southern California. There is a possibility that, while analyzing the data, the researcher saw variances in the data because of personal knowledge of the industry and the subject being explored. Any interpretation of the data gathered should consider the stated limitations.

Chapter 2.

Review of Literature

This chapter will provide a review of literature focusing on female leadership and the aerospace and defense industry. The literature review will also include background information on women's leadership roles in corporate America, the gender gap, and struggles women have faced to achieve equality in the workplace.

Culture in the Aerospace and Defense Industry

A distinguishing characteristic in comparing an organization's success or failure is in one key ingredient: organizational culture (Schein, 2004). "The companies that focus on their people, and create a social environment—or culture—in which employees can thrive, will achieve superior long-term business success" (Deal & Kennedy, 1999, p. 21). An organizational culture is an intangible yet powerful force in how a team or business operates. The culture is often ingrained into the employees as it is passed on through traditions, mission statements, and operational guidelines. The following will be discussed relative to ADC1: artifacts, espoused beliefs and values, employee motivation, and rewards and recognition. These will provide the reader a background into the subculture of a particular division of a single aerospace and defense company being studied. Where possible, examples from ADC2 and ADC3 will also be provided.

Artifacts

Artifacts contribute to the foundation of a company's culture and create a sense of what the organization represents. Schein (2004) wrote:

Artifacts include the visible products of the group, including architecture of its physical environment, language, technology and products; they are embodied in

clothing, manners of address, emotional displays, and myths and stories about the organization; and they are contained in published list of values, rituals, and ceremonies. (p. 25)

The longer an employee, and even a customer, of a business is associated with a product or organization, the meanings of the artifacts become clearer. Although artifacts can be material, they often invoke feelings, perceptions, and even the reputation of a business. As Schein notes, “artifacts include the phenomena that one sees, hears, and feels when one encounters a new group with an unfamiliar culture” (p. 25).

ADC1's Artifacts

To gain entry into one of ADC1's 22 buildings at its Southern California regional headquarters, one has to pass through rigorous security screenings. Identification checks have been in effect since 9/11, just to gain entry to one of ADC1's parking lots. Employees show their badges, and visitors show a government issued ID such as a driver's license. After parking their vehicles, visitors follow signs that direct them to the main lobby, where advanced notification of one's visit must be on record in the reception area in order to gain access to the facility. Assuming advance notification has been given, identification must once again be displayed for an escort badge to be issued. The employee one is visiting will then be contacted by ADC1 security, and he or she will arrive at the main lobby to escort the visitor into the building. There are several physical artifacts that a visitor will notice upon entry into an ADC1 facility. First, visitors will be overwhelmed with ADC1 signs regarding a six sigma process improvement program originally developed by Motorola and widely deployed by Jack Welch at General Electric. A former ADC1 Chief Executive Officer (CEO) deployed the six sigma

program across ADC1, and it remains deeply embedded in the culture. Additionally, there are several signs in block letters depicting company values. As one begins the walk from the main lobby into the building, there are offices on the window side of the building, and several laboratories on the opposite side. In front of many of the laboratories are signs that read, *Special Access Clearance Required for Entry*, followed by *No Tailgating*. Security signs are posted everywhere stating, *Don't Let Classified Information Be Compromised*, along with photographs of people who have been convicted of espionage, such as former FBI agent Robert Hanssen. Burn barrels utilized to destroy proprietary information can be seen in every hallway (These are big metal beige secure file cabinets, similar to a post office box).

Safety and diversity appear to be primary concerns at ADC1. Signs are posted everywhere stating: *Safety Is Everyone's Responsibility*, and *Embrace Diversity*. Embracing diversity as a competitive advantage is not isolated to ADC1. The leadership of ADC2 “realizes that people are an integral element of their business success. They realize that diversity in the workplace improves productivity and provides a competitive advantage for the organization” (Tacawy, 2006, p. 52). Diverse perspectives give rise to spirited, mind-opening discussions that increase learning and create knowledge. Other companies such as Alcatel-Lucent have received recognition for their support of diversity initiatives. Patricia Russo (as cited in “Lucent Technologies CEO,” 2006) was quoted as stating:

“In every experience I've had, the broader the set of perspectives attacking a problem, the better the answer,” said [Patricia] Russo [former CEO Alcatel-

Lucent]. “That’s why at Lucent we view promoting diversity as both the right thing to do and as making good business sense.” (p. 1)

Visual metrics are posted on walls showing the last time there was a workplace accident, and fire doors and exit areas are clearly marked and visible throughout the campus. Surprise evacuation drills are conducted on a routine basis, and each building has a safety coordinator trained in basic medical care and CPR. In addition, there is an entire hallway with photographs depicting the diverse workforce employed at ADC1. ADC1 has a diversity council and sponsors several employee resource groups such as the ADC1 black employee network; gay, lesbian, bisexual, and transgender association; Hispanic network; young engineers and scientists network; ADC1 Asian Pacific association; and the ADC1 American Indian network.

Employees can be seen smiling and in good spirits as they walk through the halls, and the atmosphere reminds one of being on a college campus. Few people are seen wearing formal attire, and several employees are observed wearing jeans. Those wearing formal attire are either visitors to the facility or are participating in an on-site meeting with a customer. There is an on-site credit union, with six teller counters. At the credit union, employees can secure auto loans, obtain investment advice, or refinance a home mortgage. There is a large on-site cafeteria and an employee store where employees can purchase discount tickets to movie theatres and amusement parks. At the ADC1 employee store, clothing and other items with ADC1’s logo can be purchased. When walking through the various offices, it’s clear that people with higher positions have offices with more square footage and nicer furniture. Schein (2004) identified similar practices at the General Foods Company noting, “at General Foods, promotion to a

higher rank also correlated with all kinds of prerequisites, notably a more spacious office in a better location with better furniture, higher-quality carpeting and higher-quality art on the walls” (p. 127). Near the executive wing, the furniture is shiny mahogany, with a spacious waiting area for customers and visitors to lounge while waiting to meet an ADC1 executive. Just in front of the executive suite is an entire two-story wall depicting products made by all six ADC1 divisions. There is a plasma screen showing real-time financial performance to five key metrics including cash, bookings, sales, operational profit, and return on invested capital. The goals for the year are clearly displayed, along with a display measuring year-to-date performance in each of the five categories. Later, when rewards and motivation is reviewed, the monetary reward structure in place for meeting established financial goals will be discussed.

Organizational Structure

Organizational structure refers to the way in which an organization’s activities are divided, organized, and coordinated. An organization’s departments can be formally structured in three ways: by function, by product/market, or in matrix form (Stoner & Freeman, 1992, p. 312). Often an organizational structure is outlined on an organizational chart, indicating the hierarchy of the company by title or responsibilities. Organizational structure often quickly lets those outside the company know who leads the institution.

ADC1’s Organizational Structure

ADC1’s Southern California division is organized as a matrix organization, which is the norm for large aerospace and defense firms. Robbins (2005) states:

The strength of the matrix lies in its ability to facilitate coordination when the organization has multiple complex and interdependent activities...There is also

another advantage to the matrix. It facilitates the efficient allocation of specialists.

The major disadvantage of the matrix lies in the confusion it creates in its propensity to foster power struggles, and the stress it places on individuals. (p. 220).

ADC1's Southern California division employs 12,000 employees, with 2007 revenue of \$4.3 billion. Senior leadership is composed of a president, and 19 vice-presidents (Appendix A). The division is divided into three strategic business areas and two technical areas. Each business area and technology area has a program management office (PMO), which oversees the employees for that particular program area. Because of utilization of a matrix structure, the PMO size is relatively small, in most cases less than 100 employees. Of the 12,000 employees, the engineering organization has more than half, and other functional organizations, including finance, human resources, contracts, supply chain management, operations, business development, communications, legal, and mission assurance, make up the balance. Each functional organization ideally provides enough infrastructure to the PMOs to execute its existing programs. As the organization grows, so does the infrastructure, and likewise, when government spending in the areas of homeland security and defense are reduced, layoffs occur in order to size functional organizations accordingly. Because of the cyclical nature of the aerospace and defense industry, this places a lot of uncertainty in long-term employment viability for most of the workforce. For example, from 1998 to 2000, ADC1 laid off 18,000 employees, as a result of a downturn in military spending. Likewise, in this post-9/11 era, defense spending has increased dramatically and the ADC1 division alone has hired 3,000 people between 2001 and the present. The matrix structure has proved effective for ADC1.

Although most PMOs fight for the best resources, the matrix structure allows individuals with common backgrounds to be placed into single functional units. This has helped ADC1 be flexible and agile in a continually changing environment and cyclical industry.

Espoused Values and Beliefs

According to Schein (2004), “All group learning ultimately reflects someone’s original beliefs and values, their sense of what ought to be, as distinct from what it is” (p. 28). Beliefs and values form the bedrock of a company’s cultural identity. Attitudes and principles are established early in the development of a team or organization. Robbins (2005) stated, “When selecting team members, individual preferences should be considered as well as abilities, personalities, and skills. High performance teams are likely to be composed of people who prefer working as part of a group” (p. 129). It’s important for a leader to be mindful of this when selecting team members.

ADC1’s Espoused Values and Beliefs

ADC1’s core values are broken into the following four major categories: People, Integrity, Commitment, and Excellence. ADC1’s People values are: (a) Treat people with respect and dignity, (b) welcome diversity and diverse opinions, (c) help fellow employees improve their skills, (d) recognize and reward accomplishment, and (e) foster teamwork and collaboration. ADC1’s Integrity values are: (a) Be honest, forthright, and trustworthy; and (b) respect ethics, law, and regulation. ADC1’s Commitment values are: (a) Honor commitments to customers, shareholders, the community, and each other; and (b) accept personal responsibility to meet commitments; be accountable. ADC1’s Excellence values are: (a) Improve performance continually; (b) stress quality,

productivity, growth, best practices, and measurement; and (c) always strive to be the best.

On August 30, 2006, ADC1 Southern California divisional president held a special 2-hour session with all ADC1 leaders to discuss values, behaviors, and his expectations. In his speech, he emphasized the importance of following ADC1's values and outlined that a portion of 2007 bonus compensation (which ranges from 10.5%–125% of base pay) would be directly tied to adherence of company values. “It is absolutely necessary for leaders to be clear about standards and to create a condition of shared goals and values” (Kouzes & Posner, 2003, p. 330). Across ADC1, each leader is evaluated annually on how he or she adheres to ADC1's values. In the past, those who didn't were removed or received reduced bonus compensation. This sends a strong message about ADC1's espoused beliefs and values, and the repercussions to those who don't get in alignment. It also shows the role senior leadership can play in obtaining widespread adoption of values.

“Founders of groups tend to have well-articulated theories of their own about how groups should work, and they tend to select as colleagues and subordinates others who they sense will think like them” (Schein, 2004, p. 242). Although [REDACTED] is not the founder of ADC1, he's been with ADC1 for more than 25 years, and has been serving as president of ADC1's Southern California divisional operations for the past 3 years. In his role as president, he revamped the leadership of his division, just as Schein states, “with subordinates who exhibit values and behaviors conducive to warranting a role as an executive on his leadership team” (p. 28).

Employee Morale

Employee morale is another important factor that needs to be considered when trying to understand an organization's culture. When morale is high, productivity is high; employees come to work with positive attitudes and a willingness to do not only what is expected, but often much more. When morale is low, the atmosphere changes, staff members are not happy, and, therefore, unmotivated to perform tasks expected of them. In the United States, some of the motivation theories practiced in corporations are culturally bound. As outlined in "Maslow's hierarchy of needs, people progressively proceed up the chain from physiological, safety, social, esteem, and self-actualization, which directly aligns with American culture" (Robbins, 2005, p. 61).

Regarding employee morale, there is a direct linkage between low employee morale and high employee turnover. Although some turnover is anticipated by all corporations, it is important to benchmark industry averages to compare a company's relation to others. "Newer generation workers don't feel ties to their employer, and are not afraid to jump around versus the older generation workers who feel a certain sense of loyalty to employers" (Robbins, 2005, p. 19). This difference in generational expectations can also explain why companies within the aerospace and defense industry are having a tough time retaining young workers.

Does leadership play a role or make a difference when it comes to employee morale or formulation of culture? Schein (2004) states, "Our analysis of organizational culture makes it clear that leadership is intertwined with cultural formation, evolution, transformation, and destruction. Culture is created in the first instance by the actions of leaders; culture also is embedded and strengthened by leaders" (p. 414).

ADC1's Employee Morale

Regarding employee morale, ADC1 found a direct linkage between low employee morale and high employee turnover. Although some turnover is anticipated by all corporations, it's important to benchmark industry averages to see where companies stand in relation to others. At ADC1, overall employee turnover is lower than the industry average of 12%. The average tenure of an ADC1 employee is 18 years. Some of this can be attributed to the company's generous retirement and pension packages, but does employee morale have a bearing on ADC1's low employee turnover? If so, why is it that the turnover rates among recent graduates and college hires is high? Across ADC1, greater than 20% of active employees leave the company within 5 years. The newest generation of workers entering the workforce has expectations of rising to the top quickly, versus its predecessors who believed in time in grade. According to Schein (2004):

Xer's lives have been shaped by globalization, two-career parents...they value flexibility, life options, and the achievement of job satisfaction. Money is important...but Xers are willing to trade off salary increases, titles, security and promotion for increased leisure time and expanded lifestyle options. (pp. 19–20)

This difference in generational expectations explains why companies within the aerospace and defense industry have a tough time retaining young workers. The leadership overseeing Xer's doesn't understand the different currencies valued by the next generation of employees.

In April 2001, at ADC1's company headquarters a resolution was passed to incorporate employee satisfaction as one factor in determining CEO pay. More

specifically, the resolution directly linked a portion of executive compensation to employee turnover rates and employee surveys. ADC1 believes leadership plays a crucial role in employee morale, satisfaction, and, therefore, turnover. More importantly, ADC1 was tangibly holding leadership accountable. Schein (2004) states, “Our analysis of organizational culture makes it clear that leadership is intertwined with cultural formation, evolution, transformation, and destruction. Culture is created in the first instance by the actions of leaders; culture also is embedded and strengthened by leaders” (p. 414). Rather than take Schein at face value, we looked a bit deeper into ADC1 to see if we could confirm Schein’s findings. ADC1 has six divisions, spread across the globe. Each division has a president, along with several vice presidents who form the respective leadership teams. Each president has been in his or her position for varying terms, with the longest tenure being exec1, until exec1’s retirement in mid-2008. Exec1 held the position of president an ADC1 division since 1996, and that division of ADC1 has had the lowest annual turnover (on average 1.5%–2.0%) compared to all other ADC1 divisions, and the industry average of 12%.

One could argue that comparable employment options in that geographic region were limited, and, therefore, employees were captive, with no other place to work. But employee 360-feedback surveys conducted by all six division presidents have revealed that exec1 was the most admired leader, and a primary reason employees chose to remain employed by ADC1’s division led by exec1. Exec1 was the only division leader to practice methodically double-loop learning, “questioning underlying organization policies and objectives” (Argyris, 1977, p. 116). She had teams established to implement ideas given by her employees, and she didn’t focus on such goals as retention of talent,

but rather focused on the goal of becoming the most admired employer in the state. Exec1's mind-set and vision guided the business in that geographic region to grow from \$2.1 billion to \$5.0 billion in the past 5 years, with the highest employee survey satisfaction rates, and lowest employee turnover in the company. Exec1 was a female leader and elected to retire in 2008.

Rewards and Motivation

“Every group must develop a system of sanctions for obeying or disobeying its norms and rules” (Schein, 2004, p. 126). An organization has multiple ways to reward people. In cultural terms, recognition is reserved for behavior that exemplifies core values and beliefs. Employees who exemplify core values deserve rewards if these values are to be reinforced. Rewards are motivational to individuals and are effective in signaling cultural priorities. Rewards are another tangible means of reinforcing values. Kouzes and Posner (2003) suggest, “Although increasing job satisfaction is a notable goal of rewards, the most important role of rewards...is to reinforce the key values important to sustaining an adaptive culture” (p. 93). Leaders play an important role as they possess reward power. According to Robbins (2005), “people comply with the wishes or directives of another because doing so produces positive benefits; therefore, one who can distribute rewards that others view as valuable will have power over those others” (p. 178). Rewards don't always have to be monetary. Robbins found, “A few years back, 1,500 employees were surveyed in a variety of work settings to find out what they considered to be the most powerful workplace motivator. Their response? Recognition, recognition, and more recognition” (p. 69). Leaders have the power and ability to provide recognition, and therefore play a pivotal role in employee reward systems. Best selling author and

business advisor Dr. Ram Charan (2007) made similar findings in his research. He found it's difficult for most people in whatever position their in to make a quantum leap in terms of money by moving. Employees leave companies for two reasons, "they don't like their boss and they don't feel appreciated" (Charan, p. 169).

ADC1's Rewards and Motivation

ADC1 has several recognition programs, including individual and team awards (typically \$250–\$3,000) and spot awards (\$25–\$100). ADC1 offers *sustain the gain* awards for completion of multiple ADC1 six sigma projects. These result in employees' photos being placed on walls in a high-traffic areas, acknowledging their contributions to department personnel and divisional coworkers. ADC1 invites high performers to have breakfast with the senior leadership team, once a year, and frequently profiles them in its online newsletter (published monthly). In the ADC1 engineering organization, the vice president gives quarterly functional leadership awards to his top performing section and department managers. This is delivered in a public forum, held quarterly, and comes with a plaque and cash award of \$5,000.

Specific to motivation, ADC1 is a strong proponent of work-life balance, and therefore, allows employs to work a 9/80 schedule. This program allows qualified employees to work 9 hours a day, instead of 8, and to get every other Friday off. Employees within ADC1 have frequently commented that this program is an employment differentiator, as ADC1 competitors such as ADC2, and ADC3 only recently started offering such a program. Although it is a voluntary program for exempt employees a majority of ADC1's exempt employees participate. Leadership supports the 9/80 program by stipulating meetings cannot be held on a 9/80 Friday, and employees shouldn't feel

pressured to come to work on their day off. ADC1 also sponsors a life resources program available during working hours. This program assists employees with any nonwork information they may need, including finding the nearest plumber, a reliable babysitter, movie show times, adoption services, or other information. It acts as a no cost help desk exclusively for ADC1 employees. ADC1 sponsors various noontime seminars ranging from technical topics, to investment and finance seminars. Routinely, fairs are held on campus, such as health fairs, graduate and distance education fairs, and embrace diversity fairs. All fairs are free, and in some cases, the vendors provide complimentary lunch. ADC1 believes in rewards and recognition, and believe they are paramount to achieving a highly motivated workforce. Once again, these programs would not be in place without the full support and backing of senior leadership.

The Impact of Leadership Theory on the Profile of Women in Leadership

Leadership is a universal, highly valued commodity, and as such, the literature abounds with distinguished scholars' attempts to define and understand the concept of leadership. Stogdill (as cited in Northouse, 2007) points out, "There are almost as many different definitions of leadership as there are people who have tried to define it" (p. 2). Bernard Bass (1990), whose leadership handbook has been called "the outstanding foundation source for information on leadership theory and research" (Schriesheim, Scandura, Gardiner, & Lankau, 1993, p. 104), provides one of the more comprehensive definitions of leadership found in literature. Bass (1990) writes:

...an interaction between two or more members of a group that often involves a structuring or restructuring of the situation and the perceptions and expectations of the members. Leaders are agents of change—persons whose acts affect other

people more than other peoples' acts affect them. Leadership occurs when one group member modifies the motivation or competencies of others in the group... Finally, room is needed for a conception of leadership as an attribution that is consistent with the implicit theories about it that are held by the individuals and groups who are led. (pp. 19–20)

This definition, albeit somewhat cumbersome, acknowledges that leadership is a dynamic and complex process having multiple dimensions. In addition, it alludes to the fact that one must explore and examine leadership theories to direct individual leadership practices.

Leadership theory has encompassed centuries of evolution, beginning in the 16th century with Niccolo Machiavelli's writings in *The Prince*. In this handbook, Machiavelli advises that "only by carefully amassing power and building a fearsome respect could one become a great leader" (as cited in Conger, 1999, p. 17). Much of leadership research in the 20th century has also focused on strategies and tactics to increase leader power and influence. However, more recent leadership theorists have suggested the need for leaders to share power with followers to empower them to achieve extraordinary results.

Early scholars and researchers studying leadership defined the field of leadership in a strictly male context. Not surprisingly, these scholars and researchers were men; men practiced leadership and men wrote about it. This male dominance in leadership history is perceived as a major reason for the exacerbation of the problem of "women not being seen as an appropriate fit in a management or leadership role" (Jogulu & Wood, 2006, p. 236). The road to raising the profile of women in leadership has been a long and difficult journey fraught with controversy.

Evolution of Leadership Theories

In the 18th and 19th centuries, philosophers suggested a theory of leadership called the Great Man theory (Denmark, 1993). The great man was believed to have innate “unique and exceptional features and qualities that distinguished him from his followers” (Jogulu & Wood, 2006, p. 237). This theory was constructed as a male model when women were not visible in paid employment. The mere title of this theory illustrates that women were not perceived as leaders, resulting in research during this time period that was focused solely on males.

Spawned from the Great Man theory were the traits and characteristic leadership theories. Traits theories were prominent in literature from 1904–1947. These theories focused on traits that were “fundamentally describing traits in masculine terms, and these characteristics were considered vital for successful leadership” (Jogulu & Wood, 2006, p. 237). Few women held management or leadership roles in this time frame.

Soon after the 1940s, researchers began to suggest that traits alone were not sufficient to explain effective leadership, thus giving birth to the behavioral theories (Jogulu & Wood, 2006). Research during this era was beginning to recognize the importance of concern for people as being an effective leadership quality. “A concern for people could be seen as a behavior more typically associated with feminine characteristics” (p. 239), thus injecting into the literature the first notion of women as leaders. Although the behavioral theories were proposed in the 1930s, they did not gain prominence until the 1960s. Women in positions of authority or power in organizations were still relatively infrequent at this time.

During this same time period, situational theories also gained in popularity. These theories, also known as contingency theories, embrace both leadership traits as well as situational aspects of leadership. Because these theories were developed and researched during a period when women were more likely to be in supportive, nonmanagement type roles, these theories “would have predominately been seen as applying to males in management or leadership roles” (Jogulu & Wood, 2006, p. 239).

In the 1980s, three styles of leadership were proposed in situational leadership theories: (a) autocratic, (b) democratic, and (c) laissez-faire. The democratic style, defined as a style “whereby the leader pursues an open, trusting, and follower-oriented relationship” (Jogulu & Wood, 2006, p. 240), was the first body of literature aligning leadership to favorable feminine characteristics, thus calling attention to women in leadership. Unfortunately, even though research was beginning to acknowledge women, the perspective appeared to be that the differences noted in women leaders were equated with deficiency (Fagenson, 1990).

In the early 1990s, there was a new era in the literature that could be seen as contributing to women’s career advancement in leadership. “The beginning of gender differences theories marked a shift in the leadership literature, as the behavior, skills, and attitudes of women were considered, recognized, and evaluated” (Jogulu & Wood, 2006, p. 243). The early works of Burns (1978) culminated in a comprehensive theory of transactional and transformational leadership; however, it was Bass (1985) who built upon Burns’ early work and “opened opportunities for further investigation of the leadership styles of men and women” (Eagly, Johannesen-Schmidt, & Van Engen, 2003, p. 570). Burns’ (1978) work aligned transactional leadership style with strong masculine

characteristics and qualities of competitiveness, hierarchical authority, high control, and analytical problem solving. In contrast, transformational leadership was more closely aligned with feminine qualities such as cooperation, collaboration, lower control, and problem solving based on intuition and rationality (Klenke, 1993).

The topic of gender and leadership has become increasingly popular during the past 3 decades. According to Chemers (as cited in Northouse, 2007), academic researchers ignored issues related to gender and leadership until the 1970s. The conversation has since shifted from whether women can lead, to the biases associated with women rising up the corporate ladder. “Several meta-analyses and reviews of leadership research indicated very few differences between male and female leaders” (p. 292). Regardless of the differing views, almost all researchers agreed that “women lead in a more democratic, or participative, manner than men” (p. 266).

Transformational Leadership

As women increasingly enter traditionally male-dominated roles, there is a growing interest in the relationship between gender and transformational leadership. Approximately one third of leadership research has focused on transformational leadership (Lowe & Gardner, 2001), demonstrating a growing interest in the relationship between leader and follower. This popular approach to the conceptualization of leadership has “arguably evolved to be central to the field” (Hay & Hodgkinson, 2006, p. 145).

In 2003, an empirical study done by Mandell and Pherwani (as cited in Jogulu & Wood, 2006) found, “Transformational leadership to a large extent...characterizes a feminine model of leadership, built around cooperation, lower levels of control,

collaboration, and collective problem-solving and decision-making” (p. 244). In today’s organizations, which are flatter and less hierarchical in structure, these are precisely the characteristics and qualities that are required of effective leadership.

A meta-analysis by Eagly et al. (2003) linked the effectiveness of transformational leadership and concluded, “All of the aspects of leadership style on which women exceeded men relate positively to leaders’ effectiveness, whereas all of the aspects on which men exceeded women have negative or null relations to effectiveness” (p. 569). These findings confirmed that women are more likely to possess leadership characteristics and attributes that are predominately effective in contemporary organizations as compared with their male counterparts.

An increasing number of experts asserted “a female advantage in leadership, whereby women are more likely than men to lead in a style that is effective under contemporary conditions” (Eagly & Carli, 2003, p. 807). “After years of analyzing what makes leaders effective and figuring out who’s got the Right Stuff, management gurus now know how to boost the odds of getting a great executive: Hire a female” (Sharpe, 2000, ¶ 1). Leadership experts have developed several theories to research and support these bold assertions.

According to Northouse (2007), “Transformational leadership is the process whereby a person engages with others and creates a connection that raises the level of motivation and morality in both the leader and follower” (p. 176). The transformational leader motivates and inspires the follower to “aspire to and maintain higher levels of productivity than they would have reached if they had been operating only through the transactional process” (Bass, 1985, p. 40).

The current research emphasizes transformational leadership in terms of follower empowerment and the need of organizations to become less hierarchical, more flexible, team-oriented, and participative (Kark, 2004). This concept of leadership related to follower empowerment can be associated with how women are expected to act as leaders, based upon common stereotypes. Studies by Kark have shown that women are perceived, and actually perceive themselves, as transformational leaders more than men do. Eagly et al. (2003) found small, but significant gender differences that rated women higher than men on all transactional factors. A study done by Yammarino, Dubinsky, Comer, and Jolson (1997) found women leaders provided a working environment that “encourages considerate, warm, participative, and interpersonal relationships” (p. 219), thus facilitating stronger dyadic bonds that fostered productivity, effectiveness, satisfaction, and commitment. This study provided clear support that transformational and contingent reward leadership is positively related to follower empowerment and female leadership.

Role Congruity Theory

As a Western society, we have expectations about how men and women should dress, act, interact with others, and comport themselves. Women are viewed positively when they meet or align themselves with the typical requirements of the female role. The same can be said for men. While it is clear that the standard of typical requirements has changed throughout the years, from the Victorians to the present day, there is still a set of traits that women, as a gender, are expected to embody and personify.

Role congruity theory is defined as the prejudice that exists when one person holds beliefs or stereotypes about a group that are inconsistent with the behavior thought to be necessary to succeed in a specific role (Eagly & Karau, 2002). “This inconsistency

lowers the evaluation of the group member as an actual or potential occupant of the role” (p. 574).

Under the concept of social role theory, the “distribution of men and women into social roles is the root of broader gender roles, or shared expectations stemming from a person’s identification as a man or a woman” (Diekmann & Goodfriend, 2006, p. 369).

Occupations and broader social role expectations fall under the theory, which leads to the generalized assumption that to the extent women “typically occupy social roles related to caring for others (e.g., homemaker, nurse), the communal characteristics that are required by these specific roles (e.g., kind, sensitive) are associated with women” (p. 369).

Conversely, leadership and power roles are expected to be held by men, and men are expected to have characteristics such as independence and competitiveness as a result.

The social role contains all of the direct and indirect messages a child receives growing up in the respective culture. Leaders, whether male or female, carry those messages around with them and, theoretically, those messages are part of who that leader is and how he or she performs as a leader. The same holds true for the followers.

Effective leadership has been studied for some time, but comparing women leaders with male leaders in terms of style and effectiveness is a more recent area of analysis. The style used by women tends to be “less hierarchical, more cooperative and collaborative, and more oriented to enhancing others’ self-worth” (Eagly et al., 2003, p. 569). Under the social role theory, leaders “occupy roles defined by their specific position in a hierarchy and simultaneously function under the constraints of their gender roles” (p. 572). Beyond gendered expectations of the followers, the leaders have “internalized their gender role to some extent. As a consequence of the differing social

identities that result, women and men tend to differ in their expectations for their own behavior in organizational settings” (p. 572). Thus, gender roles create an inconsistency that exists between the communal qualities associated with women of caring and kindness and the agentic qualities associated with a leader such as assertiveness and competitiveness. The problem is that leadership qualities (agentic) are the same as those used to describe males. Through social role theory, the socialization process has produced the expectation that male social qualities also happen to be leadership qualities.

Along that line of thinking, women should then demonstrate agentic qualities when they are in a leadership position, fulfilling the expectation that leaders are assertive, masterful, competent, and dominant. However, agentic behavior is viewed to be less desirable in women, creating the classic double standard that favors men.

Prejudice occurs when leadership behavior carried out by women is rated less favorably when men behave in a similar manner in similar circumstances. Eagly et al. (2003) stated in their meta-analysis of 45 studies:

Particularly consequential are the negative reactions that women may encounter when they behave in a clearly agentic manner, especially if that style entails exerting control and dominance over others. When female leaders fail to temper the agentic behaviors required by a leader role with sufficient displays of female-typical communal behaviors, they can incur a backlash whereby they may be passed over for hiring and promotion. (p. 573)

The incongruence of agentic behavior with female leaders is further exacerbated when the leader role is expected to be culturally masculine or the environment is highly male dominated. This incongruence “not only restricts women’s access to such leadership

roles but also can compromise their effectiveness. When leader roles are extremely masculine, people may suspect that women are not qualified for them and they may resist women's authority" (Eagly, 2007, p. 6). The cross-pressure of communal qualities people prefer in women and agentic qualities people prefer in leaders puts a tremendous burden on women leaders who are trying to find a leadership style that works for them. The consensus of much of the research is that a "coach/teacher style, as epitomized by transformational leadership, might approximate this middle way because it has culturally feminine aspects, especially in its 'individualized consideration' behaviors and is otherwise considered androgynous" (p. 4).

The Role of Education

A search of the literature indicates that there is little or no emphasis on education regarding gender equity in K-12 schooling. McRobbie (2004) believed that the media defines the codes of sexual conduct and the rules of the game. She further takes the position that society provides the structure for gender roles. In a postfeminist environment this includes the "ironic normalisation of pornography" (p. 259). Human resource professionals insist that companies that hire teenage workers have sexual harassment training, since teenagers and young adults do not seem to have a concept of what their rights are or what constitutes appropriate behavior (Wells, 2005). The dearth of explicit gender equity discussions in the classroom means we are missing a critical domain in which to shape gender roles and expectations before both men and women enter the workforce.

At the MBA level, some criticism has been directed at the curriculum. Simpson (2006) stated, "Management education in general and the MBA in particular create and

reflect a meaning of management that is essentially ‘masculine’” (p. 182). Several studies have shown that an MBA program focuses too much on the hard skills (analysis) and not enough on the soft skills (interpersonal; Kretovics, 1999; Mintzberg & Gosling, 2002; Pfeffer & Fong, 2002; Sturges, Simpson, & Altman, 2003). Simpson (2006) further discussed what this paper has also discussed, which is the masculine concept of management and leadership. Biases are inherent in the process of education since “less attention has been paid to gendered nature of discourses that underpin management education....These values have a deeply entrenched masculine bias which can engulf any imperative for more feminine qualities and attributes” (p. 185).

Several decades of progress for women into the labor force have gone hand-in-hand with their pursuit of higher education. According to the U.S. Department of Labor, in 1970, only 11% of women age 25 to 64 years had completed 4 or more years of college; in 2001 there were 32% that held college degrees (as cited in Chao & Utgoff, 2004).

Children do not appear to be exposed to the concept of gender equity as part of their education. The media and popular culture drive beliefs and norms of personal conduct and social interaction to the unfortunate point that teenagers must be given sexual harassment training to protect themselves and the employer. The K-12 educational process seems to be missing an opportunity to educate children on gender equity and on appropriate social norms of personal conduct in this area. At the MBA level, the traditional male leadership model is reinforced, eliminating an opportunity to teach gender equity and reframe certain expectations of future business leaders.

The Glass Ceiling

Does a glass ceiling prohibiting women from ascending to the upper echelons of a corporation really exist? If it does, how did it come about and what are some of the strategies women can utilize to break through this barrier? Numerous studies have been conducted to determine why a glass ceiling exists for women (Thurmond, Gandhi, and Hernandez, 2008). The glass ceiling is commonly referred to as an invisible barrier preventing women from ascending into elite leadership positions. The Federal Glass Ceiling Commission (1995) described the glass ceiling as the intangible barriers that slow women's progress to the top. A detailed examination of the glass ceiling will be reviewed, including arguments from the opposing side and myths about working women.

Not long ago, as recent as the early 20th century women were not allowed to vote, with additional restrictions placed on women once they were married. In 1872 Susan B. Anthony was arrested for casting an illegal vote in the Presidential election. "Under Maine law as it stood in the 1930s, only single women could work full-time in the state's public schools. Once a women had a husband to support her financially, it was assumed that she no longer needed a salary of her own" (Weiss, 1999, p. 7). Things have certainly changed in the past several decades. On August 26, 1920 the 19th Amendment of the Constitution became law granting women the right to vote in all United States elections. "By the 1990s women – married, single, divorced, separated, with children and without made up about 45% of the workforce in the United States" (p. 8). So women are now entering the workforce in equal numbers to men, but are they educated women that can compete for top jobs, or simply women that lack an education and therefore belong on the factory floor?

According to Catalyst (2005), women occupy more than half of all management and professional positions. According to the United States Bureau of Labor Statistics (2005), women make up nearly half of the U.S. labor force. Women also receive 57.5% of all bachelor's degrees, yet, they represent only 15% of the U.S. Congress and 2% of the top wage earners in *Fortune* 500 companies. A common explanation for the glass ceiling is women have invested less in education, training, and work experience. "This supposed lack of human capital is said to result in a dearth of qualified women called a pipeline problem" (Northouse, 2007, p. 270). Women also have work-home conflicts. Some self-select themselves out of a leadership track by choosing to start a family, or to spend more time with their children. Others choose part-time employment to juggle work-home conflicts. "Those that take time off from their careers often re-enter at a lower level than they left, making it that much more difficult to rise in the leadership ranks" (p. 272).

"Although women occupy more than half of all management and professional positions, they have fewer development opportunities than men at work" (Catalyst, 2005). Women have less formal job training opportunities and are typically given positions with less responsibility. The positions they do hold typically don't lead to top leadership positions. This does not negate hope for women aspiring to the upper echelons of leadership. "Because the glass ceiling makes it so difficult for women to attain elite leadership positions, the ones who do make it tend to be very competent" (Northouse, 2007, p. 273).

Northouse raises an important point regarding the competence of women at the top, but doesn't discuss the double standard that exists for females as compared to their

male counterparts. Most research suggests a double standard exists for those that make it to the top. Consider the year 1995 when the O.J. Simpson trial was all over the news and various media outlets. Public prosecutor Marcia Clark was working feverishly on representing the victims against O.J. Simpson, but was “publicly ostracized for spending more time on the job than with her children” (Swiss, 1996, p. 49). This criticism was given, although Clark was only doing what male trial attorneys, who were also parents, did day after day. Next consider the life and death of Lt. Kara Hultgreen, the Navy’s first women fighter pilot. On October 25, 1994 Lt. Hultgreen crashed a F-14 Tomcat into the Pacific Ocean off the coast of California while attempting to land on the USS Abraham Lincoln. Critics immediately spoke of how the Department of Defense Risk Rule should never have been rescinded, and women don’t belong behind the controls of a fighter jet, let alone should they attempt to land on an aircraft carrier. Was Lt. Hultgreen at fault in the accident due to inadequate training or pilot error? “We learned, in the course of speculation about pilot error later dismissed by a formal Navy investigation, that Lt. Hultgreen had ranked first and second in several key flight competencies” (p. 49).

Gender Bias - Compensation

Next consider the double standard of compensation. Understandably critics of the women’s movement and women’s rights will claim the reason for a pay gap, is due to the lack of time for qualified women to matriculate into the workforce. On the surface of things, this argument makes sense, but consider the following data. “When women go into traditionally male occupations they’re paid less than men are (female truck drivers 70 cents on the man’s dollar; female lawyers, 74 cents). But when men enter traditionally female occupations, they’re paid more than women (male registered nurses, \$1.04 on the

female dollar; male office clerks, \$1.09; male cashiers, \$1.17)” (Swiss, 1996, pp. 50 – 51). Without this sound data, women that complain about compensation would be accused of not being team players, or just simply complaining for the sake of complaining.

Gender Bias – Behavioral Expectations

Another difference between men and women is they face significant gender biases if they self-promote. “Unlike men, self promoting women are seen as less socially attractive and less hireable” (Northouse, 2007, p. 274). In addition, women are less likely than men to ask for what they want...be direct. When men are aggressive it is seen as a positive, and when women are aggressive it is seen as a turn-off. “In the leadership role women are confronted with cross-pressures: As leaders they are expected to be masculine and tough, but as women they should not be too manly” (Northouse, p. 277). These opposing expectations for women translate into less growth opportunities for them. Very often women are put at a disadvantage early on because the double standard is so pervasive. “While men are perceived to hold an intrinsic right to managerial roles, many women are merely tolerated as interlopers and bear the burden of proving that they belong in management” (Swiss, 1996, p. 52).

Gender Bias – Myths and Stereotypes

Women, by virtue of their gender, historically have been treated as the weaker sex. In 1992, Jane White in her book *A Few Good Women: Breaking the Barriers to Top Management* exams major myths about working women that have perpetuated for decades. According to White, these myths have contributed to the creation and perpetuation of the glass ceiling. “Myth #1: Women don’t have what it takes to be in top

management because they don't possess management skills" (p. 7). According to White, this bias is perpetuated by men, as men traditionally have participated in team sports and fraternity initiation rites. The truth is "if women can run countries, they can run companies." The example White gives is of Margaret Thatcher, the former Prime Minister of Great Britain. Thatcher clearly did not need any assertiveness training, neither did Indira Gandhi when she was Prime Minister of India for over 15 years, or Benazir Bhutto twice Prime Minister of Pakistan.

To date there have been 46 female Prime Ministers / Presidents of countries including Sri Lanka, India, Israel, Argentina, Central African Republic, Great Britain, Portugal, Bolivia, Dominica, Iceland, Norway, Peoples' Republic of China, Yugoslavia, Malta, Netherlands Antilles, Philippines, Pakistan, Lithuania, Nicaragua, Ireland, Haiti, German Democratic Republic, Myanmar (Burma), Bangladesh, France, Poland, Canada, Burundi, Rwanda, Netherlands Antilles, Turkey, Sri Lanka, Bulgaria, Haiti, Bangladesh, Ireland, Bermuda, Guyana, New Zealand, Switzerland, Bermuda, Mongolia, New Zealand, Panama, Latvia, and Finland. According to White the only reason why you can count more females at the helm of ships of state than as captains of industry is because of the selection process involved; the first is democratic, the second autocratic. "Myth #2: Women can climb the corporate ladder by possessing that amorphous quality known as leadership skills or by working twice as hard as a man" (White, 1992, p. 7). The truth is women have to work smarter, not necessarily harder. They have to join key social networks, be known as problem solvers, and develop the trust of their leaders. This is compounded by the gender bias they face. In many cases women have dual responsibility for performing on the job, and caring for a family or loved one at home is. Ultimately

men in leadership positions have to have the courage to give qualified women an opportunity, even though women don't look like they do, or are not members of the same private golf clubs.

In 1992 a survey was conducted by Korn/Ferry of women in senior management positions in the Fortune 1000 industrial and 500 service companies. The results of this survey were used to refute many of the popular stereotypes about women used as evidence of why women are senior management material. The following is a paraphrase of the respondent's remarks:

1. Women are not as committed to their careers as men, yet only a third of the women had ever taken a leave of absence. Almost two-thirds of these leaves were for less than six months and 82% of these leaves were for maternity or other family reasons. If maternity is controlled for, more men in the Korn/Ferry surveys took leaves of absence than did women.
2. Women will not work long hours, yet the respondents in the Korn/Ferry survey worked an average of 56 hours a week in 1992. This is the same number of hours reported by their male counter parts in a similar 1989 Korn/Ferry survey. Recall the example of Marcia Clark. Marcia did put in the hours, but was criticized for not providing care for her children and family.
3. Women cannot or will not relocate, yet only 14.1% of the women in the 1992 survey refused relocation. 20% of their male counterparts reported refusing relocation in the 1989 Korn/Ferry survey. Korn/Ferry found that women were not asked to relocate as frequently as men. Part of the reason why is likely that talented females are likely married to career minded, well qualified males.

4. Women lack quantitative skills, yet 23% of women and 27% of men have spent most of their corporate careers in finance. 16% of men and 26 % of women are in the commercial banking or diversified financial sectors. It's true that there are few women in purely technical fields such as Engineering, but that in itself doesn't support the notion that women lack quantitative skills.
5. Women are warmer and more nurturing than men, yet "concern for people" was cited as important by 33% of men and only 18% of women in the Korn/Ferry surveys.

Obstacles and Barriers faced by Women in Corporate America

Women have faced obstacles climbing the corporate ladder in several industries including banking, media, law, accounting and education. "According to the American Bankers Association, women make up a whopping 75% of the banking work force, but fewer than 8% of senior management." (White, 1992, p. 17). In the banking industry, women tend to plateau in middle management jobs, in which they make up 41% of the managers. In March 1989, the Los Angeles Times conducted an informal survey of the 10 largest banking companies in the United States, and found only 3 women out of more than 200 senior executives held the title Executive Vice-President or its equivalent. When searching for a root cause, the data showed women couldn't get into management training programs at major financial institutions 20 years earlier when the grooming would have started. In addition, in the 1960s and 1970s aspiring women in the banking industry were

placed in staff positions in personnel and corporate communications, which effectively was a guarantee they wouldn't be placed on the succession plan of the CEO. "Funny thing about glass ceilings, they are often visible only to those banging their heads against them. In a survey of male CEOs and female vice-presidents 71% of the women believe there is a glass ceiling and 73% of the men don't think there is" (p. 18).

According to White, the Media is another sector that may give equal time to political candidates, but doesn't treat the opposite sex equally. A speech given by Victoria Fung to the Gannett Center for Media Studies at Columbia University speaking of women anchors at networks "where men's salaries run anywhere from 15% to 81% higher, where an unwritten double standard requires female anchors to be an average of 20 years younger than male anchors and where looks often matter more than experience and credentials" (White, 1992, p. 19). In the Law sector, although 1 in 3 associates of a law firm is a woman, only 1 in 13 is a partner. This data was backed by a separate study conducted by the American Bar Association in the early 1990s. It found "only 20% of all lawyers are women and 8% of the partners at large law firms are women" (p. 19). Women in the Accounting field didn't fare much better. A report issued in 1987 by the American Institute of Public Accountants found that "only 3.7% of the partners at major accounting firms are women" (p. 20). Some believe that accounting firms are now coming to the conclusion that women are as capable as men, and in time women will move up the ranks as they now account for 50% of people majoring in Accounting. Others feel that while the gap might close in terms of admission to the executive suite (aka making partner), that will still not resolve the gap in pay that will surely exist between women and men of identical qualifications. Lastly, taking a closer look at

women in Education, although 2/3 of all public schools teachers are women, only 5% of the nation's superintendents are female. Women "hold a miniscule number of college and university presidencies; fewer than 350 of the nation's approximately 3000 institutions of higher learning are headed up by women (p. 20). Only recently did Harvard University, for the first time in its 371 year history, elect a female president in Drew Gilpin Faust.

Gender Equality in Aerospace and Defense

Specific to the aerospace and defense industry, the majority of the top officials are white males, while the number of women and minorities represented in top positions remains low. At ADC3, 13% of its managers are women, and about 9.5% are minorities. The 13% statistic encompasses all levels of management, including first-line to executive level (Aviation Week & Space Technology, 2001). A *Flight International* article states, "Traditionally this industry has been male-dominated, but there is no-factual reason why women can't do as well or better than men" (Moxon, 2004, p. 33). In 2008, Dr. Wanda Austin was selected to be President and CEO of the Aerospace Corporation. She became the first female leader of this organization since it was founded in 1960. This is a step in the right direction for aspiring female leaders within aerospace and defense.

According to Tischler (2004), some women fault the workplace, because of their perception that corporations do not do enough to accommodate women's family responsibilities. ADC3 provides on-site daycare at a place called the *Launching Pad*. A similar on-site daycare is not provided by ADC1 or ADC2. Carr (2002) and Tacawy, (2006) suggested that women often reach managerial levels at a time when many have conflicting demands on their time because of a fully committed home life.

Women saw a new era beginning in the 1960s. The passage of federal legislation in 1964 prohibiting employment discrimination started opening up avenues for women. Women account for 46% of the workforce, and it is projected that women in the labor force will increase 48% by 2010 (Fullerton & Toossi, 2001). Today's women are equal to their male counterparts in education, experience, and skill. In the single largest demographic phenomenon of the last half-century, the number of employed women more than doubled between 1960 and 1990, rising from 21.9 million in 1960 to 53.5 million by 1990 and constituting 60% of the total increase in employment (Fogg, 2003).

The Federal Glass Ceiling Commission was created out of the Civil Rights Act of 1991 (Jackson, 2001). It was established to foster advancement of women and minorities. In 1995, the commission reported women made some progress in advancing to upper-level management positions, but continued to face obstacles to promotion. According to the commission, these obstacles include gender stereotyping, sexual harassment, exclusion from mentoring and crucial work assignments, and placement in dead-end positions traditionally reserved for women. All of these findings support the viewpoint of the existence of a glass ceiling for women, preventing women from attaining senior-level positions. The commission identified several major barriers for women to achieve senior management positions, including being placed in dead-end assignments, a lack of mentoring, lack of job rotations and high visibility assignments, exclusion from informal communication networks, and a general gender bias. According to Ramsey (2003):

A review of literature indicates that the career mobility for females may be influenced by a number of factors including but not limited to sexism, racism, tokenism, glass ceilings, stereotyping, good old boy networks, good old girl networks, education, preparedness, mentors, role models, networking, family support, self-esteem, spirituality, tradition, and institutional climate. (p. 1)

Role of Culture in Gender Equality

What is the role of culture in reinforcing the glass ceiling and contributing to the gender bias that exists? One female executive, regarding male senior executive hiring managers, stated, “They all dress alike, they all look alike, they tend to hire people that look like them, and they play by very similar rules” (Swiss, 1996, p. 77). She continued to observe, while working for an investment banking firm, how her male colleagues would become nervous when she entered a room, versus how suddenly they would relax when a tall guy, or man with gray hair came in behind as her alternate or teammate. According to Swiss, “None of the women I met, even those at the top of their organizations deny the existence of unequal treatment on the job. Among senior managers, 62% believe the old boys’ network perpetuates gender bias to a great extent” (p. 69).

Women are adversely affected when vying to fill a position. The decision maker is invariably a man, and “biases can clearly disadvantage women when male leaders are looking for replacements” (Northouse, 2007, p. 277). In general, people prefer to work with those who are similar to them. “It doesn’t mean that all men bond really well with all other men. They don’t, but there’s just something about being the same gender that generally makes you bond faster” (Swiss, p. 53). Often women are not allowed into the

key networks, what some term the good ole boy network. “A lot of senior women are disappointed to discover that a big part of their effectiveness is dependent upon the people they know and how they network; this fact is not a surprise to men” (Swiss, 1996, p. 53). In 1994, *Business Week* magazine published a cover story by Galen and Palmer, titled “White, Male and Worried.” The essence of the article was the worry white males faced at the changing demographics in the workplace. According to the article, white men recognize they are calling the shots and getting most of the promotions. Swiss believed that although women threaten men’s long-standing workplace entitlements, the old boys’ network remains a powerhouse behind the double standard.

There is an opposing viewpoint regarding the glass ceiling; specifically, that there is no such thing as a glass ceiling preventing women from rising through a corporate hierarchy. Diana Furchtgott-Roth (1998) believed, “The glass ceiling is a myth promoted by feminists in an attempt to gain unfair preferential treatment for female workers” (p. 73). She contended that women have made tremendous strides in terms of gaining equality, and the only reason for a pay gap is a conscious choice on the part of women. Glaser and Smalley (1999) agreed that the scenario described above is entirely possible. “For a variety of reasons, there are times in many women’s careers when it makes sense to refuse promotion, transfers, and jobs that require long hours, frequent travel, or impossible workloads” (p. 50). This notion of maintaining the status quo or not striving for that next promotion provides women with ways to keep working, without sacrificing a sense of balance and well being. Some women decide to plateau after witnessing firsthand the stress and burn out that take place when career is chosen over work-life balance. Other women decide to stay because they enjoy the job they currently have and

are in a comfort zone. Anne Sweeney, President of Disney/ABC Cable Network (as cited in Pestrak, 2001) said, “I’ve never been a proponent or a believer in the glass ceiling. That kind of thinking has held more women back than helped them” (p. 20). In other words, the existence of a glass ceiling is fictitious. What one focuses on is what one sees. Banner (2003) points out that there is limited research found on the career mobility of women, and that the career paths are determined by a wide variety of personal and environmental factors.

Furchtgott-Roth (1998) made another important argument against the existence of a glass ceiling. Current data would suggest that less than 5% of the *Fortune* 1,000 CEOs are women (Catalyst, 2005), and proponents of the existence of a glass ceiling will cite this as proof that women are not being given equal opportunities to compete for top management positions. In reality, most top management positions require 25 years of experience along with a master’s degree in Business Administration. “Women received less than 5% of graduate degrees in the sixties and seventies, and these are the graduates who are at the pinnacle of their professions” (Furchtgott-Roth, 1998, p. 76). This supports the pipeline theory that women have not reached the top in greater numbers since they have not been in the pipeline long enough; however, it does not support the existence of a glass ceiling. Nearly 10 years have gone by since Furchtgott-Roth’s work was completed and, unfortunately, not much has changed. Further work should be done to update this study, testing the validity of the original assumptions. Things should be getting better. According to an *HRMagazine* article (Harvey, 1999), the workforce of the 21st century will be increasingly diverse with more women and minorities.

Furchtgott-Roth (1998) challenged the fundamental makeup of the Federal Glass Ceiling Commission, which was 75% women. The commission included a U.S. Senator, two U.S. Representatives, a bank president, corporate vice presidents and senior vice presidents, attorneys, and presidents of consulting firms. According to Furchtgott-Roth, “Ambition has taken on new meaning if these women consider themselves held down by the glass ceiling” (p. 75). Since 1982, women have earned more than 50% of all bachelor’s degrees and master’s degrees. Similar trends hold for doctoral and medical degrees. “In 1996 women represented 54% of the class admitted to Yale Medical School” (p. 75). The bottom line, in Furchtgott-Roth’s opinion, is barriers (and a glass ceiling) for women have disappeared. “When discrimination does occur, there are legal remedies to deal with it under the Civil Rights Act and the Equal Pay Act. Women are bringing these cases to court and winning” (p. 77).

Summary

Contemporary approaches to gender and leadership involve understanding style and effectiveness differences between men and women and determining if there is a positive correlation between these and breaking the glass ceiling. The transformational leadership style is beneficial to women, as it is not an overtly masculine style. Despite the glass ceiling, women are increasingly joining the ranks of top corporate executives, and this field of study will continue to expand and grow until gender equality is reached.

Chapter 3.

Methodology

The purpose of this chapter is to outline the research design and methodology for this study of gender equality within the aerospace and defense industry. The chapter will present an overview of the participants and will provide an explanation of the interview process and procedures by which data were collected, documented, and analyzed.

Restatement of Research Questions

To achieve the goals of this study, two research questions were developed:

1. What are the leadership ratings of the four female executives at a single aerospace and defense company, as measured by the LPI? This data was retrieved from the LPI assessment results, and descriptive statistics were calculated. Descriptive statistics included range, mean, variance, and standard deviation.
2. How do the four female executives describe their career paths, including their educational experiences, their leadership style, personal or professional obstacles that they may have encountered along the way, and advice they would give other leaders aspiring to their level of leadership? A coding system was used to categorize the responses to this open-ended question. The responses were then synthesized and reviewed to answer the research question.

Research Design and Rationale

A great deal of literature has been published concerning the lack of women in leadership positions, particularly in the male-dominated aerospace and defense industry.

Carr (2002) and Tacawy, (2006) suggested that women often reach managerial levels at a time when many have conflicting demands on their time because of a fully committed home life. Numerous studies have been conducted on the upward mobility of women in several industries such as education and nursing. According to Tischler (2004), some women fault the workplace, because of their perception that corporations do not do enough to accommodate women's family responsibilities. Very little research has been conducted on the upward mobility of women in the aerospace and defense industry, or to understand what it is like to be a female executive in the aerospace and defense industry. Regarding Aerospace & Defense a *Flight International* article states, "Traditionally this industry has been male-dominated, but there is no-factual reason why women can't do as well or better than men" (Moxon, 2004, p. 33). The findings of this study build on similar studies of Hudak (2000), Tischler (2004), Tacawy (2006), and others in the barriers that are perceived by women as they move up the corporate ladder.

To investigate properly the upward mobility and experiences of women in aerospace and defense, a qualitative research study was selected. The researcher chose this technique, as results are trends or themes that are described in words (Patten, 2000). The qualitative approach allows the researcher to understand the female leader's career experiences, and provides the participants an opportunity to describe and define events in their lives that they perceive as having assisted their advancement. The selection of this method provided an opportunity to study female executives in their natural settings.

This qualitative research study reviewed what it is like to be a female executive in the male-dominated aerospace culture of a single major aerospace and defense company with significant operations in Southern California, which is hereafter referred to as

ADC1. Data collection occurred within the ADC1 operations in the greater Los Angeles region of Southern California because the researcher is based in Southern California and an employee of this company. This area includes Long Beach, El Segundo, Torrance, Canoga Park, Woodland Hills, Redondo Beach, Seal Beach, and Manhattan Beach, CA. Products manufactured in this region include commercial and military aircraft, space craft, satellites, sensors, radar, and missile design and production.

For this study, a qualitative methodology was used. This case study approach allowed for data collection and techniques to be “gathered from interviews with participants, observations, documents, and audiovisual materials” (Creswell, 2007, p. 225). An in-depth interview was the preferred methodology because an interview allowed for greater depth; permitted probing to obtain more data, which made it possible to establish and maintain rapport with participants; and also provided a means of checking information between the interviewer and interviewees (Isaac & Michael, 1997). Additionally, a survey was administered to each participant. LPI assessment, which allows participants to answer 30 questions related to their leadership styles, was chosen as the survey instrument for this study.

Protection of Human Subjects

Prior to conducting the study, the researcher had taken a course required by the Institutional Review Board (IRB) of Pepperdine University’s Graduate School of Education and Psychology. This course provided the researcher with a better understanding of the requirements for protecting human subjects (Appendix B). The female executives in this study were consenting adults who were asked to participate in this study. Initially e-mail was sent (Appendix C) to six female executives, to solicit

participants, along with an informed consent form to be human research subjects. This approach provided the potential participants information regarding the purpose of the study and the role they would play if they chose to participate voluntarily in this study. Throughout this process, and as documented in the informed consent form (Appendix D), interviewees were assured confidentiality and the option to withdraw at anytime during the process. Four female executives from a single major aerospace and defense company consented to participate in this study. In addition to the confidentiality provided to the participants, their company's name will also remain confidential. During the data collection process, all data collected was stored in a locked file cabinet at the researcher's home and will be destroyed after five years. A thank you letter was sent to each study participant for her voluntary participation in this research endeavor. Institutional Review Board (IRB) approval was secured April 8, 2009.

Panel of Experts Review of Interview Questionnaire for Validity

To increase the validity of the interview instrument, a panel of two females and two male leaders reviewed the interview questions on April 11, 2009 to eliminate weaknesses, to ensure that the questions were well understood, and to ensure that participants could respond to each question without difficulty. Two of the experts were active employees of ADC1, one of the experts was employed by ADC2, and the final expert was employed by ADC3. Wording of some of the questions were revised as suggested by the panel of experts. Question 5 was re-worded to be open-ended, instead of the original question 5 which was a leading question. Question 11 was amended to include behavioral expectations, since much of the researched literature alluded to the behavioral expectations placed on women as they rose in their careers.

Pilot Test of Interview Questionnaire

The researcher's original interview guide contained 10 questions and was reviewed by two female leaders from ADC1. These two females were not participants in the study. In mid-April the female leaders tested the questionnaire for content and helped determine the time required to complete the in-depth interview process. The entire process of completing the LPI assessment and interview took one hour. The interview responses were captured by the researcher, but a third-party observer was not available to participate in this pilot test process. Two questions were added to the interview questionnaire, as suggested by the pilot test participants, which further strengthened the validity of the questionnaire. The first question added was the question which asked about leadership style. Since the LPI assessment was administered, the leaders suggested adding a question regarding the leadership style of each interview participant. The final question added asked about the uniqueness of the aerospace and defense industry. Since the focus of the study was on female executives from within the aerospace and defense industry, this additional question probed at the uniqueness of this industry from the views of executives that have been promoted to senior leadership positions. The final interview questionnaire can be found in Appendix E.

Validity and Reliability of the LPI Instrument

The Leadership Practices Inventory (LPI) is an instrument, developed by James M. Kouzes and Barry Z. Posner (2003). The instrument measures and identifies in numerical values five leadership practices: (a) Challenge the process, (b) enable others to act, (c) encourage others to act, (d) inspire a shared vision, and (e) model the way. The LPI is a self-reporting instrument composed of 30 statements that are rated on a 5-point,

Likert scale ranging from 1 = “rarely”, 2= “once in a while”, 3= “sometimes”, 4= “very often”, to 5= “frequently”. (Appendix F). The statements focus on the leadership behaviors exhibited by the participants and the frequency in which they practice them. The instrument has been proved reliable over decades of application and use. Kouzes and Posner (2003) wrote:

These practices aren't the private property of the people we studied or of a few select shining stars. They're available to anyone, in any organization or situation, who accepts the leadership challenge....They've stood the test of time, and our most recent research confirms that they're just as relevant today as they were when we began our investigation over two decades ago—if not more so (pp. 13–14).

Challenge the Process. Challenging the process is the practice of taking risks and learning from successes and failures. To seek opportunities to challenge one's skills and abilities and to challenge the status quo (Kouzes & Posner, 2003). This will be measured through the LPI.

Enable Others to Act. Enabling others to act is the practice of nurturing collaboration among others through trust and supporting growth in others. To share power and acknowledge the contribution of others (Kouzes & Posner, 2003). This will be measured through the LPI.

Encourage the Heart. Encouraging the heart is the practice of providing meaningful recognition in a timely fashion to reinforce the values of the organization. An overwhelming commitment and passion for what the leader is creating and accomplishing (Kouzes & Posner, 2003). This will be measured through the LPI.

Inspire a Shared Vision. Inspiring a shared vision is the practice of maintaining a clear vision and mission with enthusiasm. The ability to enlist others and seek consensus (Kouzes & Posner, 2003). This will be measured through the LPI.

Model the Way. Modeling the way is the practice of conveying the values of the organization through language, symbols, physical structure, and ceremonies. The ability to set clear goals while upholding high standards (Kouzes & Posner, 2003). This will be measured through the LPI.

Written permission to use this instrument was obtained from the authorizing organization (Appendix G). The goal of the instrument was to determine the frequency with which these four leaders practiced certain behaviors and actions. The responses were documented and screened for patterns and consistency. To learn more about the participants, demographic questions were added to the beginning of the LPI instrument, such as current title, age, years of service with their existing company, years of professional service, and highest level of degree obtained. Using an interview questionnaire, the participants were asked a series of questions related to how they obtained their level of leadership and barriers and obstacles they encountered.

In addition to the LPI instrument, an interview questionnaire was designed by the researcher and also administered to all participants. This will be described in greater detail in Chapter 3.

Population and Sample

After ensuring protection of human subjects, as well as the validity and reliability of instruments, the researcher began examining the lived experiences of four female executives employed at a single major aerospace and defense company with significant

operations in Southern California (ADC1). The population for this study was located by the researcher from the pool of female executives that are either currently based or have been previously based in the Los Angeles region of Southern California.

Sampling Technique

Using this convenience sample, this study was conducted at ADC1 headquarters, located in the Los Angeles region of Southern California. Convenience sampling is a sampling technique “in which those invited to participate in the study are simply those who are available to the researcher” (Morse & Richards, 2007, p. 195).

The main criteria for the selection of participants for this study was (a) current or previous employment in the region of the aerospace and defense industry, (b) current employment at the targeted aerospace and defense company (ADC1), and (c) being a female, at a minimum, at the executive level (vice-president rank or higher).

Data Collection

The data collection for this study occurred at ADC1 headquarters in the Los Angeles region of Southern California in mid- to late April 2009 (Table 1). The researcher administered both the LPI and the questionnaire specifically designed for used in this study. The LPI instrument was sent to participants upon IRB approval (April 8, 2009). Each participant completed the LPI instrument and returned it to the researcher at least 1 day before their scheduled interview. The first interview was conducted on April 20, 2009, and the final interview was conducted on April 24, 2009.

The Interview Questionnaire

During the in-depth interviews conducted with four female executives who are at the vice-president level or higher, and all work for the same aerospace and defense

company with major operations in Southern California, each leader was interviewed using the interview questionnaire designed for this study (Appendix E)

A. Section One—Background, career progression, and leadership style

To start, I would like to learn about your professional experience and career history from the beginning to present.

1. What attracted you to your profession?
2. How has your career developed over time?
3. How many years into your career did you decide you wanted to get into management?
4. How long did it take you to obtain your 1st executive position?
5. What education or training enabled you to obtain your leadership position?
6. What do you believe are the top three factors that contributed most to your career success?
7. Is there anything unique about the aerospace and defense industry that made it more or less difficult for you to obtain your current level of senior leadership?
8. What is your leadership style, and do you feel that contributed to the success you've had in your career?

B. Section Two—Barriers/Obstacles

9. What are some of the most difficult challenges you faced personally or professionally along your journey, and how did you overcome these?

10. In your opinion what are possible reasons why so few women have obtained your level of senior leadership?

C. Section Three—Behavioral Questions

11. What suggestions would you give or have you given other women who are seeking management / senior leadership positions in terms of attitude, skills, behavioral expectations, experience or education?

12. Is there anything you would like to add that I may not have asked regarding your journey to achieve your current level of senior leadership, any obstacles faced along the way, or advice you would give others aspiring to a senior leadership position within the aerospace and defense industry?

Each interview question was asked to specifically address each part of Research Question 2. In addition, the responses were cross referenced to the coding system to determine why so few women have achieved an executive rank within the aerospace and defense industry.

As shown in Table 1, the first collection of data occurred after IRB approval was secured on April 8, 2009 (Appendix H). The researcher conducted all interviews and captured notes by hand. As utilization of recording devices is severely restricted on ADC1 premises, interviews with the ADC executives were observed by an administrative assistant employed at the company. Not all interviews were conducted in person. Two of the interviews took place in person and two were conducted via telephone. The approximate time required to conduct each interview was 1 hour. In advance of the interview, each participant agreed to complete a LPI assessment. This took on average 15

minutes, and responses to the LPI assessment were provided at least 1 day prior to the in-depth interview.

Responses to interview questions were read back to interviewees to ensure further accuracy. Upon conclusion of the interview the researcher's notes and the observer's notes were triangulated to ensure responses were accurately captured. "Triangulation refers to the gaining of multiple perspectives" (Morse & Richards, 2007, p. 91). There were no major disconnects found between the researcher's notes and observer's notes. If disconnects were determined, the researcher was prepared to contact the interview participants for clarification.

Table 1

Dissertation Study Timeline

Timeline Steps	Completion Date
Secure letter of support from ADC1 (Appendix J)	March 3, 2009
Secure permission to use LPI instrument	January 24, 2009
Held preliminary oral defense	January 28, 2009
Completed modifications	February 26, 2009
Completed IRB package	March 24, 2009
Secured IRB approval	April 8, 2009
Executives completed LPI assessment	April 17, 2009
Interview with Participant 1	April 20, 2009
Interview with Participant 2	April 21, 2009

(table continues)

Timeline Steps	Completion Date
Interview with Participant 3	April 22, 2009
Interview with Participant 4	April 24, 2009
Code and synthesize data	April 30, 2009
Complete Chapter 4	May 7, 2009
Final oral defense	June 1, 2009
Graduate from Doctoral program	June 20, 2009

Analytical Techniques

Themes emerging from the interview questionnaire during the four interviews were documented, coded, and synthesized to ensure they have adequately answered the research questions. The techniques utilized will be described in detail below.

The LPI. The results of the LPI were captured and descriptive statistics such as mean, range and standard deviation were calculated. The researcher is a former adjunct professor of mathematics with an advanced degree in engineering, so he personally reviewed the statistical data for any findings.

Coding system. A coding system was also used to analyze the data collected during the interviews. Torrez (1998), Porter (2002), and Tacawy (2006) are examples of studies performed in a similar fashion. Torrez's interview questionnaire focused on factors leading to the underrepresentation of Hispanic women in school superintendent roles. Porter's interview questionnaire was administered via telephone to determine how African American women obtained senior leadership positions. Tacawy's questionnaire was administered to 16 female senior managers and executives at a single aerospace company to determine where women were in their careers, how far they planned to go,

how they obtained their position, and recommendations for professional development and training.

The researcher for this study followed a similar approach, establishing patterns and coding responses utilizing a previously developed coding system (Table 2). As described by Creswell (2007), “For a case study, as in ethnography, analysis consists of making a detailed description of the case and its setting” (p. 163). All interview notes taken by the researcher and the observer for this study were transcribed and reviewed for patterns.

Table 2

Research Questions’ Cross Reference

Research Questions	4 LPI Scores (Challenging the Process, Inspiring a Shared Vision, Enabling Others to Act, Modeling the Way, Encouraging the Heart, Total Score)	Descriptive Statistics
1. What are the leadership ratings among the four female senior executives at ADC1 as measured by the Leadership Practices Inventory (LPI) (Kouzes & Posner, 2003)?	<p>4 LPI scores:</p> <p>Enable Others to Act (Survey Questions 4, 9, 14, 19, 24, 29)</p> <p>Encourage the Heart Survey (Questions 5, 10, 15, 20, 25, 30)</p> <p>Challenge the Process (Survey Questions 3, 8, 13, 18, 23, 28)</p> <p>Inspire a Shared Vision (Survey Questions 2, 7, 12, 17, 22, 27)</p>	<p>Means</p> <p>Standard Deviations</p> <p>Range</p>

(table continues)

Research Questions	4 LPI Scores (Challenging the Process, Inspiring a Shared Vision, Enabling Others to Act, Modeling the Way, Encouraging the Heart, Total Score)	Descriptive Statistics
	Model the Way (Survey Questions 1, 6, 11, 16, 21, 26) Total Score (Survey Questions 1-30)	
2. How do the four female executives describe their career paths, including their educational experiences, their leadership style, personal or professional obstacles that they may have encountered along the way, and the behavioral expectations placed on them being a female executive?	Career Path (Survey Questions 1, 2, 3, 4, 11, 12) Educational experiences (Survey Questions 1, 2, 3, 5, 6, 7, 10, 11, 12) Leadership Style (Survey Questions 5, 6, 8, 10, 11, 12) Personal or Professional Obstacles (Survey Questions 4, 5, 7, 9, 10, 12) Behavioral Expectations (Survey Questions 5, 6, 7, 9, 10, 11, 12)	Coding System

A coding technique was established to categorize like responses into themes and then synthesized to answer the research questions. Likewise, the results of the LPI assessment were categorized per Appendix I to determine the statistical relevance of the responses in answering the research questions. Themes emerging from this data will be discussed in Chapter 4.

Table 3

Coding System

Barriers for obtainment of an executive leadership position	Supporting View Code	Exec 1	Exec 2	Exec 3	Exec 4
1. Behavior—expected to act like a man	S1				
2. Mommy track—time off to start/have a family	S2				
3. Pipeline theory—Haven't been in the pipeline long enough	S3				
4. Type of assignment given—set up for failure; low visibility, high risk	S4				
5. Good Ole Boy Network—not in the inner circle	S5				
6. Mandate—lack of quota or mandate	S6				
7. Other	S7				

Summary

This chapter described the research design and rationale, the setting, sample and participants, information regarding study of human subjects, data collection procedures, instrumentation, and analytical techniques. This research design was consistent with the objectives as stated in Chapter 1, and strengthened by the literature review in Chapter 2. The data collected were from interviews and observations of female leaders in current senior leadership (vice president or higher) roles. The researcher personally conducted the interviews and an LPI survey instrument was completed by each executive in advance of the interview. Observations were documented while the researcher was on site at the

single aerospace and defense company. After collecting the data, the researcher reviewed the results and proceeded with coding, synthesizing, and interpreting the data. Results, conclusions, implications, and recommendations from the data collection are presented in Chapter 4.

Chapter 4.

Results, Conclusions, Implications, and Recommendations

This chapter presents the findings resulting from in-depth interviews, and completion of a LPI assessment by four current female executives employed at a major aerospace and defense company. The four leaders varied as to their educational background, age, leadership role in the company, ethno-cultural representation, and length of experience. Additionally, this chapter will discuss the conclusions, implications, and recommendations based on the findings. In this chapter, conclusions based on the results of the study will be presented. The researcher will also provide recommendations for the aerospace industry and recommendations for future research.

Restatement of the Problem

A significant amount of literature has been published discussing the lack of women in senior leadership positions, particularly in the male-dominated aerospace and defense industry. Little has been published on women who have been successful in the aerospace and defense industry and currently hold a vice president, president, or corporate officer title. According to Catalyst (2005), women occupy more than half of all management and professional positions. According to the United States Bureau of Labor Statistics (2005), women make up nearly half of the U.S. labor force. Women also receive 57.5% of all bachelor's degrees, yet they represent only 15% of the U.S. Congress and 2% of the top wage earners in *Fortune 500* companies.

Restatement of the Purpose

The purpose of this study was to identify, through qualitative data analysis, how the female executives rose to their level of leadership within the male-dominated

aerospace and defense industry and the primary factors that contributed to their obtaining that level of leadership. This study is intended to develop an understanding of the lived experiences of these female executives, to understand the barriers and obstacles they faced along their journey, and document the advice they would give to others seeking similar career success. The qualitative research methodology designed for this study allowed the researcher to understand the leaders' career experiences and thoughts regarding how they obtained their level of leadership. This approach assisted in documenting the participants' perceptions of the factors that led to their upward mobility by focusing on their career aspirations, career experiences, leadership styles, and barriers encountered along the way.

The results of the interviews are presented in two sections within this chapter, which align with the two research questions for the study. To answer Research Question 1, the first section presents a description of the sample, documenting each executive's background information and her score on the LPI instrument. To answer Research Question 2, an additional section presents a summary of the female executives' responses to the 12 interview questions, as well as a summary of the common themes reported in accordance with the research questions.

Restatement of Research Question 1

What are the leadership ratings of the four female executive leaders at a single major aerospace and defense company (ADC1), as measured by the Leadership Practices Inventory?

This study was divided into two distinct parts. The first was completion of a LPI assessment by Kouzes and Posner (2003), and the second was participating in an in-depth

interview to discuss each participants' unique background, barriers and obstacles encountered along the way, behavioral expectations and advice these executives would give other women aspiring to their level of leadership.

To answer Research Question 1, the researcher administered the LPI. The LPI assessment was administered after IRB approval was received, April 8, 2009, and LPI results were provided by participants at least 1 day prior to their scheduled interview. The interviews were conducted from April 20–24, 2009. Several demographic questions were added to the beginning of the LPI instrument, and additional demographic data was captured during the in-depth interviews.

Description of Participants

The following is a description of each participant's background information, including age range, marital status, number of children, educational background, number of years it took to obtain her first executive position, and her thoughts on what led to her success. Some of this information came from interview questions, and the remainder from demographic information added to the LPI instrument. For ease of reporting results, this demographic information will all be reported in this section. Each female executive's score on the LPI instrument is also provided.

Participant 1 (Corporate Officer). Participant 1 is an Asian American, in her early 50s, not married, and doesn't have children. She is the chief technology officer for the company. She holds a bachelor's and master's degree in math, and has an engineering degree from UCLA. This is above a master's degree level, but below a doctorate. She completed all the coursework for a Ph.D., and passed the preliminary written and oral

exam, but did not complete a dissertation. She has more than 30 years' industry experience, with more than 20 years at this particular aerospace and defense company.

Participant 2 (Corporate Officer). Participant 2 is a company vice president, and president for one of this company's six divisions. She manages a workforce of more than 9,000 employees, across multiple domestic and international geographic locations. She has been at this company for less than 5 years, but has between 26 and 30 years' total professional experience. She is in her late 40s, married, and has two children. Her husband is a stay-at-home father.

Participant 3 (Vice President). Participant 3 is vice president for communications at the Southern California-based division of this aerospace and defense company. She holds a bachelor's degree in communications and has been at this company and in the industry for less than 2 years. She has a total of 16 to 20 years' professional experience, is in her 40s, is married, and does not have any children.

Participant 4 (Corporate Officer). Participant 4 is a company vice president and chief information officer for the company. She is based at the company's corporate headquarters and has a bachelor's and master's degree in electrical engineering. She is 52, has more than 30 years' industry experience, and all of these years have been with companies acquired by this large aerospace and defense company. She is married with two adult children. Her husband, who has retired, owned his own company and continued working while she advanced in her career.

Of the four participants, 2 were Caucasian, 1 was Hispanic, and 1 was Asian. Ages ranged from 40 to 54. Of the participants, 2 were in their 40s, and 2 were in their early 50s. Of the four participants, 3 were married. Of these, 2 had children. Of the

participants, 1 was single (never married). Of the participants, 3 held at least a master's degree, and 1 of the four participants held only a bachelor's degree. Of the four participants, 3 currently hold officer-level positions (senior vice president or executive vice president), and 1 is a vice president at the Southern California-based headquarters of a single division of the company. The purpose of providing this demographic information is to identify the varied background of the four participants, all of whom secured executive-level positions in the male-dominated aerospace and defense industry. This will provide a blueprint for other women aspiring to achieve the same level of career success within the aerospace and defense industry. By viewing a copy of the completed LPI assessment for each of the four executive participants, aspiring leaders can focus on actions they can take and development areas they may need to strengthen for their unique leadership style.

LPI Survey Results

Each of the four executives agreed to take a 30 question LPI assessment prior to conducting the in-depth interview. Permission to administer this survey was received from the authorizing organization. Table 4 shows the results.

Table 4

LPI Survey Results

LPI 5 Practices	Exec 1	Exec 2	Exec 3	Exec 4	Total	Mean	Standard Deviation	Variance	Range
Model the Way	24	24	26	23	97	24.25	1.25831	1.58333	3
Inspire a Shared Vision	29	28	26	26	109	27.25	1.5	2.25	3
Challenge the Process	29	25	25	17	96	24	5.03322	25.33333	12
Enable Others to Act	27	27	25	28	107	26.75	1.25831	1.58333	3
Encourage the Heart	27	28	23	23	101	25.25	2.62996	6.91667	5

Conclusions for Research Question 1

A LPI assessment was completed by each participant and submitted to the researcher at least 1 day prior to the interview. LPI scores were tabulated above to further differentiate the background of the interviewees. The sample size of executives was small; therefore it was difficult to interpret the results of the LPI with any level of statistical relevance. However, the standard deviation from the four executives was fairly consistent for the leadership practices of Model the Way, Inspire a Shared Vision, and Enable Others to Act. The standard deviation and range were higher on the practice Encourage the Heart, and the standard deviation and range were markedly higher in the category Challenge the Process. This means for this sample of four executives, there is consistent alignment on most of the categories of the LPI, except Challenge the Process.

This did not come as a surprise, since Participant 4 freely admitted (during the interview) she rarely took out a weapon, tried to work collaboratively on a solution, and was satisfied with an answer that was 90% of what she was hoping to achieve. During the interview she remarked how she could count on a single hand how many times she drew battle lines over the course of a 30-year career.

Restatement of Research Question 2

How do the four female executives at ADC1 describe their career paths, including their educational experiences; their leadership styles; the personal or professional obstacles they may have encountered along the way; and the behavioral expectations placed on them as female executives?

To answer Research Question 2, the interview for each participant was broken into three distinct sections, which correspond to the three sections of the Interview Questionnaire. The first eight questions focused on understanding the career progression, including their educational experiences, and leadership style. The next two interview questions focused on personal or professional obstacles encountered along the way, and the final two questions focused on additional thoughts they would give to other individuals aspiring to reach their level of leadership. While the researcher used the same script of questions with all executives, they were free to answer the questions candidly.

Section 1—Career Progression, Educational Experiences, and Leadership Style

Questions one through seven of the interview questionnaire were designed to determine how the four female executives describe their career paths. Question eight asked the executives to describe their leadership styles.

Interview question 1. To start, I would like to learn about your professional experience and career history from the beginning to present. What attracted you to your profession?

Participant 1: I was attracted to a career in engineering as a total fluke. I had graduated with a math degree, and came to Southern California on vacation. I was just killing time. One of my mother's friends called my mom and talked to her about how her second son was working at an aerospace and defense company. He also held a math degree. I flew down to visit my mother's friend and found out he had set up an interview for me at his company. That's how I got my first job out of school in aerospace and defense.

Participant 2: The real answer is, I've had a lifelong dream is to be a Spanish

teacher. I still have this dream. I looked at pay scale, and decided this won't be my first career. I've been interested in the fast pace of technology businesses. I looked at the different pay grades, and decided to become a manufacturing engineer.

Participant 3: I aspired to be a television news journalist. When I was 19 years old, I became the youngest producer at an ABC affiliate in Southern Louisiana. I realized it wasn't the career I wanted, and so I got into corporate public relations.

Participant 4: My father was an engineer. I was good at math as far back as I can remember. I skipped a grade when I was young, and always had a sense I would do something associated with math. Seemed like the right thing to do to get an engineering degree. A lot of engineering students struggled with the technical aspect of math (analytical rigor), and this came easy for me. Regarding how I became involved with aerospace and defense: I had a teacher in college, a part-time instructor, who was also a full-time engineer within the aerospace and defense industry. I developed a strong rapport with my instructor. After my term, I approached him about getting work experience and asked if he had advice for me. I wanted exposure to engineer jobs, and, therefore, went to work with him when while I was still a student. Just before graduating with my degree, I also interviewed with NASA, Hewlett-Packard, and other commercial companies, but at the end this company didn't want to lose me, so I ended up staying there. I started out by chance in a really wonderful environment and during my time there was given a lot of challenging assignments.

Analysis of Interview Question 1

All four responses were similar in the sense in that the participant's chosen career within aerospace and defense was not by design. In all four instances the executives stumbled into a career within the aerospace and defense industry. Participant 1 became an engineer and joined an aerospace and defense company by accident, because of an introduction by an acquaintance. Participant 2 never wanted to be an engineer, and continues to have a passion to be a Spanish teacher. The need to be financially secure led her to an industry with traditionally higher pay scales, and thus her first role as a manufacturing engineer. Participant 3's career goals made a transition from television journalism to corporate public relations. Participant 4 was highly influenced by both her father and an instructor in college. This led to her obtaining an engineering degree, and joining the aerospace and defense industry (where her instructor was employed). It is refreshing to know that a career does not need to be mapped in advance in order to reach the pinnacle of a profession (an executive leadership position). This is consistent with the findings of Tacawy (2006):

Several of the participants who had pursued a technical degree such as engineering, math or physics had been encouraged by either a parent or a teacher. Also for the fact that with a technical profession you can get a bachelor's degree and get a good paying job. (p. 89)

Interview question 2. How has your career developed over time?

Participant 1: I started out as a member of technical staff. After 11 years, I left the company and went to another aerospace and defense company with operations in Florida. I was hired as a principal engineer, but after 1 year I left to join the

applied technology division of yet another aerospace and defense company. This company had operations in the San Francisco Bay area, and I left the second company I worked for primarily since I hated living in Florida. After about 15 months, I decided I needed a break, and decided I was either going to mountain bike across China or hike across the Andes. This break lasted for 6 months, and then I was heavily recruited to go back to the second aerospace and defense company I had joined in Florida. Although I loved the work, I hated the state, and turned down the offer. I wanted to stay in California, and went back to the first aerospace and defense company I had joined out of school. I became a project manager, and later program manager for small technology programs. I then got into line management for 2 years, and then [was] tapped for several positions including developing an array, leading a radar and electronic warfare effort, leading a proposal effort, leading a mission area for the unmanned market, followed by a staff role. During the time I took on a staff role, I was tapped to be the vice chair and, later, chair for the Air Force scientific advisory board. I was a member of this board for 3 years, and chair for another 3 years. This included working half time directly for the U.S. Air Force. Ultimately, I was tapped to be the chief technology officer for this company, and have been in this role now for 2½ years.

Participant 2: My career has never developed. This morning I sat down and counted, and I've held 21 jobs in 27 years. My personal strategy is to have clear line of sight in what you're doing. The three golden rules that I've followed are: Know that you're making an impact. Just realize if you weren't in the job then

things wouldn't happen; Don't work for jerks; Have more fun than not.

Participant 3: Primarily through accidents and opportunities, I took every job that made sense. Sometimes the lateral move made sense. I was fortunate to have opportunities. I also had a willingness to relocate geographically. I've taken a lot of international assignments, which I wouldn't have been able to do if I had children.

Participant 4: I spent 10 years at a single aerospace and defense company, and when it was acquired by another company, I was there for 10 years, then when the existing company ADC1 acquired them, I've now been at ADC1 for about 10 years. The first 10 years of my career I also taught part-time and thought I would want to be a professor. I taught electrical engineering classes for 3 years. I didn't see myself teaching long term, and at some point I was glad to get back to a single 40-hour-per-week job.

Analysis of Interview Question 2

Each of the participants provided a unique response. Participant 1 showed an openness to try new things, and move from one company to another within the aerospace and defense industry. She is also the only respondent who admitted to needing and taking a leave of absence. Participant 2 is driven by three guiding principles. She's held a number of roles, and has always stayed true to her principles. Participant 3 admitted to luck and that opportunity played a key role in her career success. She was also quick to point out that she didn't take every job and cited the importance that flexibility played in opening the door to opportunities. Flexibility to relocate geographically, primarily driven by her choice not to have a family. Participant 4 is the only executive who joined a

company out of college and has remained there for more than 30 years (albeit it, this included surviving corporate acquisitions). She was unsure of whether to leave the industry to join an academic institution full-time, and clearly still exhibits a passion to teach. Overall, the only common theme that emerged from all four executives was their willingness to try new things, take on challenges, and take roles that others would often pass up.

Interview question 3. How many years into your career did you decide you wanted to get into management?

Participant 1: Seven years after first entering the work force I first thought about it.

Participant 2: I never really made a decision to get into management. I loved working with teams. I didn't make a conscious decision to work with teams, but I enjoy it.

Participant 3: I never made a conscious decision to go this route. I feel if you stay at a place long enough, you'll end up managing people. This first happened to me in my early to midtwenties. I was given a staff.

Participant 4: When the supervisor that I worked for at my first aerospace and defense company retired, I felt I could do that job. This was approximately 7 years from the time I graduated with my degree. I felt like it was time for me to do that job. I went to his boss and said I wanted to be considered. I interviewed with another aerospace company at the time, they were willing to hire me as a front line supervisor, so I gave 2 weeks' notice to my employer, and they ended up on the Friday of my 2 weeks' notice coming through with a counteroffer. They

kept me, and I became the frontline supervisor for that group. Some regrets I have are not working for ADC1 out of school, and not going to ADC1, and opting to stay at my original company to be a supervisor. Primarily because the ADC1 pension plan was unbelievable.

Analysis of Interview Question 3

Of the executives, 2 never decided to go into management. The other 2 got the inclination 7 years into their respective careers. From a researcher's perspective, the most interesting observation came from participant 3, when she said if you stay at a place long enough you'll end up managing people. There is a lot of wisdom in this comment, but regarding the need to make a conscious decision to go into management, the data above shows it is not a prerequisite to becoming an executive.

Interview question 4: How long did it take you to obtain your first executive position?

Participant 1: It took me 24 years (1978–2002) to first become a vice president.

Participant 2: Fourteen or fifteen years.

Participant 3: When I was 31 years old, I was part of the governor's directorate and ran a state agency. I had a self-generated budget and ran a 17-member cross-industry functional board.

Participant 4: I graduated from college in 1980, and got the vice president title in 1999. I had to fight and claw to become a group head at my first aerospace and defense, since I didn't want to be an indispensable group engineer forever. During the late '80s defense downturn, my career took off. Every couple of years I was doing something else. Sometimes lateral, but often had a lot of momentum. It was

about a 10-year trajectory, and ultimately when I reflect back it's been a great career paved on crappy assignments. This enabled me to advance way beyond chronological experience. Other people have 1 year of experience 10 times. Once you turn around a couple crappy assignments, you develop instincts and capabilities as a turnaround leader. It's capable people that get tapped to plug problems. I moved to Tucson, Arizona to become a department manager. Then I moved from engineering, quality, manufacturing, capture team, test equipment, back to information technology. I was located in Southern California working for the division president at the time, when I was asked to relocate to corporate headquarters in Massachusetts to work for the chief executive officer [CEO] of the company. I've been here since April 2001.

Analysis of Interview Question 4

None of the four participants became executives in the same length of time. This underscores the notion that each individual is unique, and her career is a unique journey. Participant 1 was frustrated that it took her 24 years. She explained that the hardest part for her was getting out of the pack as a junior engineer, and being recognized as someone capable of handling additional responsibility. Participant 2 got there the quickest in a corporate setting, but the trick was to jump from company to company, and not be restricted by geography. She's taken a number of assignments, including roles in which she was stationed in Australia. Participant 3 became an executive in her early 30s, but not in a traditional corporate setting until much later. Participant 4 took 19 years, and she freely admitted the struggles she went through just to get her first supervisory role 7 years into her career. The responses to this question further validate that each individual is

unique, and there is no single recipe, at least in number of years, to become a corporate executive.

Interview question 5. What education or training enabled you to obtain your leadership position?

Participant 1: There were three courses in particular that stood out for me in my career: A program management development course; An advanced leadership program; The UCLA executive management program, which really taught me about issues I've had to deal with as an executive.

Participant 2: N/A: My position was not predicated on formal education, other than basic leadership tenants. I believe you have to have on-going learning and experience, but not necessarily formal education.

Participant 3: Mostly what I learned from my father, who had managed people for decades. He explained to me that people are motivated differently, but you should treat all people the same. He wanted to be known as being fair. He helped me to develop confidence that I would exceed at each progressive level, and helped me to become fearless. I attended a Catalyst event in New York last month and they discussed how women generally feel they need to [be] 80% ready to take on a stretch assignment, versus men only need to be 20% ready.

Participant 4: This is no doubt an engineering company. My educational background of a bachelor's degree and master's degree in electrical engineering were invaluable. In many cases, the pedigree is important. When ADC1 acquired the first aerospace and defense company I worked for, people would ask me that very question: What is your educational background, what degrees do you hold,

and where did you go to school. The executive program at Anderson school at UCLA was also rewarding. I predict my replacement will be able to get here with a graduate degree in information systems, but that type of specialized background didn't exist when I went to school.

I also feel internal programs were important. This helps for you to get exposure, and for decision makers to decide if you're capable of stretching into an assignment. I believe there's some level of processing that takes place to put a woman in a role, that doesn't necessarily take place when you put a man into a role. In my opinion, this holds true for minorities as well, but more so for women. My measure—I used to sit on a lot of promotion review boards—even from an A [nontechnical] classification to an E [technical] classification, I was fascinated that men that were self-taught frequently went from A1 to E1 [entry level with nontechnical degree to entry level with technical degree designation] or A3 to E3. In all my time on review boards, I never saw one example of transition of a woman from A [nontechnical degree] to E [technical degree designation]. Including women with Ph.D.s. That's the reality. The first time I got promoted to section head, my manager congratulated himself for taking a big risk for giving me the job. The world is different today. I think things change—slower than I thought. Describe 2009, the environment my daughter would be moving into professionally, I thought we'd be much more ahead. I think some of the things she deals with, I dealt with. There are still pockets of that. Today, I see it as we hire women engineers, they complain when they become the configuration management person on a team instead of moving directly into design-related

[technical] activities. If you observe in our industry there are very few non-degree people that are female.

Analysis of Interview Question 5

The responses executives' gave to this question were varied. Ram Charan states in his book *Know-How*, "It also spurred my interest in finding the underlying reasons leaders succeed and fail. Education didn't seem to matter" (2007, p. 20). The first 3 executives didn't place a lot of value of formal education as a strong contributor for how they achieved their level of leadership. Participant 4 took a much stronger position, stating that the formal engineering education she obtained was invaluable, since she acknowledged working for an engineering company. The responses were varied, partly because each participant understood the question differently. For example, participant 1 did not discount formal education; she merely listed training classes she received that better prepared her to be an executive. Participant 2 responded by stating her position was not predicated on formal education, but later acknowledged the importance and necessity of on-going learning, coupled with experience. She holds an advanced degree, so certainly she had some motivation to continue formal education past the undergraduate level. Participant 3 touched upon the attributes of confidence and fearlessness as essential traits that, in her opinion, differentiate women from men. Participant 3 also did not discount the need for formal education, but chose to answer the question with her thoughts regarding the importance of a mentor and traits she felt have enabled her to succeed in a corporate environment. Participant 4 spent a bulk of the time in response to this question focusing on inequality differences between men and women. She provided examples in her career of how women have been treated differently. She cited how her

section manager in 1987 (7 years into her first role) patted himself on his back for having the courage to appoint a woman as section supervisor. She also spent time acknowledging things are getting better, but also showed discouragement that in 2009, things aren't much better, citing examples of things her daughter is dealing with that she also dealt with 30 years earlier.

Overall, this was the first question posed that opened the door for the four executives to reflect back on their career progression, almost as a comparison to experiences that their male counterparts have had. Issues such as inequality, gender bias, and social behavior norms emerged as topics of concern for these executives.

Interview question 6. What do you believe are the top three factors that contributed most to your career success?

Participant 1: I have five factors that I'd like to list: Persistency—never giving up; Enormous drive; Passion for what I'm doing; Not afraid to take risks, even if I have zero expertise; Ensuring I produce a quality product each and every time

Participant 2: The luck factor. Timing, right place, right time; Hard work and results—meet your commitments; Being flexible. I've never turned down a job when asked. Being flexible to geography is fundamental. You have fewer opportunities as you rise in your career—whatever restriction you might have, you have to adjust your expectations. Instead of 50 opportunities you might have 5 or 10. Be reasonable. Incidentally, I never had a strategy to move geographically to get ahead. There were challenging jobs other people didn't want to take along the way, and believe me, in many cases I wasn't the first one they asked; Communication and team-building skills. You have limited credibility if

you're just dropping in. This challenges you to take what you've learned, and play it into results; Flexibility and resiliency—the ability to come in, assess your environment—understanding big things that can change a business...that's a real skill.

Participant 3: I've done it all. Not afraid to move, and every job I've had I made sure I did it better than anyone else. The lessons I learned from my father. Also, I believe everyone should have a mentor or coach. They can provide advice and counsel in very important situations.

Participant 4: Ability to create win-win situations. When I found obstacles or barriers, I studied the chess board for a long time, and made my move in a way we could all live with it: Being easy to work with; Effective; A driver—but in a good way; Successful—without falling into double-edge stereotypes; Stamina/perseverance (never giving up); Willing to work hard—put in tremendous hours—and did it on assignments no one else wanted.

My husband had a career as a surveyor, working for an engineering company in California and Arizona. He started his own company and recently sold that when we moved to Massachusetts. Now he's retired. We didn't follow the mold completely. I'm 52. I still have 5 years or so working. When the kids were little, we traded off. Juggled a lot of that. One time in my career I went overseas 3 to 4 weeks, my husband took vacation time and came over in the middle using all his vacation time. We were lucky, that was the only time in my career I was overseas for an extended period of time.

Analysis of Interview Question 6

All four executives responded with a list of factors, well above the top three that were being queried. Some cited luck, passion, confidence, communication and team-building skills, work ethic, producing a quality work product, having a mentor or coach, and being effective. The key themes that stood out across all four executives were the attributes of fearlessness, persistency, internal drive, and flexibility. Participant 1 specifically listed persistency and enormous drive as her top two factors. Participant 2 listed hard work, meeting commitments, and having flexibility and resiliency. Participant 3 addressed fearlessness, confidence, and flexibility. Finally, participant 4 touched upon being a driver, never giving up (persistency), and being easy to work with (flexibility). In response to this question, none of them cited that being female either contributed or was detrimental to their career as they climbed the corporate ladder. The attributes identified by the four executives are universal, and can be applied to aspiring leaders, regardless of gender.

Interview question 7. Is there anything unique about the aerospace and defense industry that made it more or less difficult for you to obtain your current level of senior leadership?

Participant 1: Not having worked in any other industry, I can't critique.

Participant 2: I couldn't come up with anything in particular, other than in technology fields there's obviously less women. If anything, I felt advantaged by that.

Participant 3: In my discipline the discipline and tools are the same. Being the only right-brain person in a left-brain world is unique to aerospace and defense.

Trying to always put everything in their [male peers'] terms.

Participant 4: Being an engineer at this company, or in the aerospace and defense industry. When you're a woman, you're a woman from day 1. What's interesting, this company is an engineering company, and engineers are in positions of privilege. When I went from engineering to information technology, it was a night-and-day difference how I was received and treated. I had it [privilege] and lost it when I moved to a different function. I got to experience firsthand—how they see it other, how they're treated. When people are very frustrated, when we experience that ourselves, that makes us better leaders and makes our instincts more developed.

Analysis of Interview Question 7

The four female executives interviewed came from diverse backgrounds, and this became apparent with the diversity of responses. Participant 1 didn't have a basis of comparison, since she's only worked in the aerospace and defense industry. Participant 2 has worked for a number of companies, and has only been in the aerospace and defense industry for 5 years. She admitted to feeling advantaged by being a woman. Because of her varied background in multiple industries, particularly in the commercial sector in which speed, agility, and adaptability are stressed, she brings a lot of unique skills not readily available among career aerospace and defense industry employees. Participant 3 is on a divisional leadership team composed of 19 executives, where only 3 are women. Her background is television journalism, so the aerospace and defense industry, of which she recently joined less than 2 years ago, is an eye opener for her. She truly felt for the first time in her career that she is a right-brained person in a left-brain (aerospace and

defense industry) world. Participant 4 focused more on educational background and technical competence in answering this question. She acknowledges that she's female, but in her opinion it's engineers who get treated with privilege. She felt privileged in the first part of her career when she was in engineering, and felt a rude awakening of sorts when she left the engineering function for a career in information technology.

The response from all four executives to the question of the unique nature of the aerospace and defense industry were all over the map. This is primarily because the backgrounds, experiences, and career paths of these four executives were so varied.

Interview question 8. What is your leadership style, and do you feel that contributed to the success you've had in your career?

Participant 1: I have an inclusive style. I seek the opinion of others. I'm goal-driven. I listen to opinions, but make decisions. I understand priorities, and most importantly what is the highest priority. I also believe that it is important for everyone to have a mentor or a coach. These are people with different perspectives that can warn you of possible pitfalls in areas you may not have any expertise or experience.

Participant 2: There was a book I read a long time ago, *Servant Leadership*. It got popular for a while. I do feel like great leaders recruit and develop A-plus partners, and get out of their way. Their job becomes eliminating barriers. We want to be the expert as leaders, and be in charge, but I feel that is self-limiting. Your organization can only be as successful as you are.

Get an A-plus team. Set strategy and content. Set that strategy and guidelines. Hopefully, you drive a different tempo within the organization. Good

leaders communicate and connect to people. It allows them to recruit great people. Helps them to drive. On the topic of setting the vision, we see a lot of visions. That's certainly something you need to put out there. It's just insufficient. Sure, have to know the end state, but the important thing is giving people that framework. Decompose those words to be meaningful to people. This touches on the communication piece I alluded to earlier. It's the whole framework. There was a quote I remember from Mike Capps, who did a lot of pro bono work in corporate strategy. He loved to do strategy work for small businesses, since they don't have to simulate results. One of the negatives of being process oriented is you can easily confuse activity with results.

Participant 3: It has been evolving as I mature. I believe in being consistent, being in alignment with the values and behaviors for the organization, and holding people accountable for doing the same. I believe I'm getting better at this over time. When you make a mistake, learn from it. Be inclusive, and collaborative. It takes skills to go from being an individual superstar, to making everyone successful. I do try to motivate, and believe I don't know it all. It's important to recognize good behavior, values, and appropriate work quality. At our company, we tend to jump on what needs to be fixed, versus jumping on accomplishments.

Participant 4: I've always been collaborative. I did the things that I was told good leaders do—I wrote performance reviews for my people myself, did things that are part of our roles and responsibilities, but many people don't. When you're committed and follow through, when you're communicating regularly with

people, flowing training, having safety audits, the reward is the organizational vitality of your group goes way up over other groups. This makes your job easier in the long run. Additionally, my ability to execute, and being detailed oriented. On the factory floor I ran a tight ship. As I moved up, my ability to build relationships became more essential; doing the things you should do enabled me to transition to be an executive. That's why leaders reach out to you and will pull you into their life boat: I picked battles very carefully; Rarely, if ever, did I get out a weapon; If you draw battle lines—even if you're not. Very rarely do I do that. I'm willing to live with 90% of what I was hoping to achieve, and not battle over the 10%. This enables you to be careful not to be stereotyped, and makes leaders and decision makers want you on their team; When they ask other people, they will get good feedback.

At some point of your life as an adult, you learn more from amazing people. You learn because of affiliation and exposure to amazing people. Are people going to learn a lot from you, or survive you? Ask yourself that question. I had one boss I survived. When he moved on, I told my husband I'd be bringing home a cheap bottle of champagne.

You don't always know when you take an assignment that you'll be working for a difficult person, but over my career if I didn't, I may not be in this job. One of those (difficult) people motivated me to do things I wouldn't have done in a safe environment. He taught me how to take risks.

Analysis of Interview Question 8

Each of these executives has a unique leadership style. Participant 1 has an inclusive style, is goals driven, understands priorities, and believes in the value of a mentor or coach. Participant 2 was deeply impacted by a book she read years earlier titled *Servant Leadership* by Robert Greenleaf. She believes her role as a leader is to set strategy and content, and get out of the way. She believes in developing talent, and then eliminating barriers. She also believes as you rise in your career, you have to have an ability to communicate and connect with people. Participant 3 believes in consistency, and having alignment with values and behaviors. She holds people accountable, and believes in an inclusive and collaborative environment. She also believes that an organization should recognize and reward key contributors who exhibit positive values, behaviors, and quality of work. Participant 4 also has a collaborative style, she is detailed oriented, focuses on building relationships, and believes that she learns by exposure to amazing people.

All four executives cited being collaborative, inclusive, and building relationships as key attributes that they feel have contributed to the success they've had in their careers. These are attributes that can be applied by all aspiring leaders, regardless of gender.

Section 2—Barriers and Obstacles

Interview questions 9 and 10 help to determine what personal or professional obstacles participants may have encountered during their climb up the corporate ladder.

Interview question 9. What are some of the most difficult challenges you faced personally or professionally along your journey, and how did you overcome these?

Participant 1: I believe the hardest part in someone's career who's aspiring to rise up the ladder is to get noticed, and stand out from the pack at the junior levels. I was promoted later than my peers, although I felt I was better. I learned how to deal with being recognized. Culturally, this was not my norm, but once I figured it out I modified that behavior, and the results can speak for itself.

Participant 2: I feel for the most part, very few. I've had tough jobs, is the only thing that comes to mind. I found myself in one point of my career in a politically charged, unethical environment. This did not serve the customers or employees well. I tried to work and change that environment, but this goes back to the three rules of my career. I left the job in less than a year.

Participant 3: I'm very hard on myself. I hold others to the same standard. Not everyone will live up to my expectations. It's been a challenge to balance how not to be as hard on others as I am on myself. I'm a super creative person, but find that people challenges take up most of my time. This is not necessarily unique to the aerospace and defense industry.

Participant 4: One thing personally that I tend to see in women. I see women when they are faced with challenges, they tend to lose confidence quicker. The biggest challenge is to stay in the driver's seat, even when you're struggling. You may not get another chance, and also knowing how to ask for help, instead of getting rescued. Be mindful of language and how you manage up and across. Leaders ask for what they need to be successful, and ask for it early, but don't give up the driver's seat.

Analysis of Interview Question 9

Each executive approached their response to this question from a unique reference point. Participant 1 spoke about the challenge of getting noticed as a junior engineer, and the frustrations she had when several of her contemporaries advanced quicker than she did. She also spoke about the cultural differences from new native Asian background, to acceptable norms within the American corporate environment. She learned to overcome her fear of speaking up, and contributing ideas at meetings, and she believes this has led to a breakthrough in her career advancement. Participant 2 admitted to facing few challenges in her career, other than a time when she had to deal with a politically charged, unethical environment. She is someone who has guiding principles she sticks by, and, therefore, left that role after only 1 year. Participant 3 found the biggest obstacle in her career being the people challenges she's had to face. She voiced frustration that a bulk of her time had to be spent on the lowest performers, and how much easier her job would be if they would just do their jobs. She also admitted to be hard on her employees, and found it a challenge to identify and balance how hard she should be to each member of her team. Participant 4 focused a lot of her time in response to this question on the need to stay in the driver's seat. She felt women tend to lose their confidence quicker, but it was vitally important not to give up the driver's seat, as you may not get another chance. Each executive faced a unique challenge or multiple challenges as they rose up the corporate ladder. Nothing stood out as a common theme; however, the advice given by these executives can be applied to all aspiring leaders, regardless of gender.

Interview question 10. In your opinion, what are possible reasons why so few women have obtained your level of senior leadership?

Participant 1: What they have to sacrifice—balancing career with family. I see women take time off, that can't spend as much time here. It's a choice. I've always been career driven. This was my number 1 priority in life, and, therefore, work/life balance has been a struggle.

In my opinion, lots of women are less comfortable taking risks. They are risk averse. In this environment, you must be aggressive. You can't be passive, or soft-spoken. You must take risky positions, and shine. It's hard to build that track record. In general, I believe women are less self-confident.

Participant 2: I wonder if women don't get promoted in same percentage as men. It doesn't feel like I'm one of a few. The biggest thing that women have to have to climb the corporate ladder is a supportive family structure. I had a stay-at-home spouse, which is vitally important as our kids are now 13 and 15.

Participant 3: Priorities, understanding what you want and your willingness to sacrifice to get it. Having a support system, and additionally this has been historically a male dominated industry. When I attended a Catalyst event last month in New York, they said don't climb the corporate ladder and pull it up behind you. It is our responsibility as a female executive that made it to mentor others to realize their potential.

Participant 4: How we've been socialized, and how we ask for things; fact that we're socialized differently; traditional arrangements cause disruptions; go back 20–30 years. Dynamics then, barriers then—what will it look like this 20–30 years from now? A lot of the things don't exist now, such as women receiving advanced technical degrees; Women will point to lack of exposure, opportunity;

Men will say lack of experience, not enough women in pipeline; Leaders having the courage to pick people that don't look like them.

They see their strengths and weaknesses, and immediately think about accommodating the weaknesses [men]; when the person doesn't look like them, those chinks in armor become reasons why they shouldn't select that person. Those natural things they [men] don't even realize they're making excuses. It's a different conversation when they're trying to be courageous. We find ourselves accommodating the gaps. We'll joke about it. Next thing you know Joe has the job. The minute it's someone different, they process intellectually instead of emotionally, those become reasons, in my opinion, why women won't get assignments.

Analysis of Interview Question 10

This question really gets to the essence of what these executives consider as the primary reasons so few women have succeeded to their level of leadership within the aerospace and defense industry. Participant 1 felt it was an individual choice regarding what each aspiring leader was willing to sacrifice. This could include taking time off to start a family, or any personal reason that would result in a leave of absence from work. She also felt women were less comfortable taking risks, and strongly felt women must be aggressive to advance in the aerospace and defense industry. Last, she touched upon the need for women to have self-confidence. Participant 2 took almost a naïve approach to answering the question. She responded that she didn't feel she was one of a few, but conceded that her supportive family structure with a stay-at-home spouse has provided much needed flexibility. Participant 3 also felt that it was a choice on what aspiring

leaders are willing to sacrifice, followed by the need for a support structure, and her thoughts regarding the difficulty in advancing in a male-dominated industry. Participant 4 felt strongly that women were socialized differently than men, and traditional arrangements have caused a disruption (such as which partner should be the primary bread winner). She felt in the aerospace and defense industry, there was certainly some truth to the lack of women in the pipeline (at least during her time). Few women were getting advanced technical degrees, which she felt was a prerequisite to senior leadership roles. She also felt that leaders have to have the courage to pick someone who doesn't look or think like them. She felt women have been disadvantaged as a result, but is hopefully for the future and feels times have been changing.

After applying the coding system described in the previous chapter to the responses from all four executives, there were some common themes. All four executives felt that the mommy track (category 2) played a role. Taking time off to start a family, and possibly not having a support system in place, was a common theme presented by all four leaders. Of the four executives, 2 felt the first category, behavior (being expected to act like a man), played a role. The need to be aggressive, assertive, speak up in meetings, and act like a man. Of the four executives, 1 touched upon category 3, the pipeline theory, and the lack of women with technical degrees as a reason why so few women have made it to the executive ranks within the aerospace and defense industry. Of the four executives, 2 touched upon the male-dominated industry and gender viewpoints indicative of the existence of a good ole boy network. Of the four, 1 was detailed in her response, based on personal observation while rising up the corporate ladder. Only 1 of the executives touched upon the need for leaders to have the courage to pick others who

don't look like them. Surprisingly, none of the executives talked about the need for a quota system, or spoke about the effectiveness of diversity systems that have been in place for minorities and female employees at all major aerospace and defense companies. None of the leaders spoke about being given assignments in which they felt they were deliberately set up for failure, or put into a low-visibility, high-risk role. Perhaps this didn't apply to them because all four of these leaders made it to the executive ranks within the aerospace and defense industry. Perhaps if the study were expanded to include directors and senior managers, this response would have been identified.

Section 3—Behavioral Expectations and Additional Thoughts

Interview questions 11 and 12 helped to determine how the four female executives at ADC1 describe the behavioral expectations placed on them as female executives.

Interview question 11. What suggestions would you give or have you given other women who are seeking management/senior leadership positions in terms of attitude, skills, behavioral expectations, experience or education?

Participant 1: I mentor a lot of women. First I tell people, don't be afraid to take on positions you feel unqualified for. Don't be risk averse. Continuously learn. Don't get pigeon holed into one position. You need to be self-confident. You must exude self-confidence, or it will put doubt that you can deliver. Have a positive, can-do attitude. Go beyond what's expected. Give your bosses and customer more. Build a solid reputation. Be aggressive. As you move up, it's important you recognize and reward others. The higher you go, the less you can do yourself. Get mentoring. Most people you admire, they will take the time out

to mentor you, and likewise you should mentor others, such as employees more junior than yourself.

Participant 2: I just go back to the three rules and encourage everybody. I tell people not to be focused on planning a career. Take jobs that meet your personal criteria. Do what you do well. You have to love what you do. I meet too many people in the business world that are martyrs. They have crappy bosses, work long hours, and hate their jobs. Know your priorities. Whatever they are.

Do you want to be CEO? I don't. I really wasn't all that excited about taking on this job. I always felt other people might be more qualified than me, and often have given the hiring manager other peoples' names that should be considered for roles that I was ultimately given.

Have you had a mentor or coach? I haven't had a formal relationship with anyone. I routinely asked people for advice and counsel, and they just gave it. I just believe in continuously learning.

Participant 3: Don't be afraid of a lateral move; Build all skill sets in your tool kit; Have an unstoppable attitude and become a go-to person; Model the best behaviors; Work harder than anybody else; Be able to articulate your results in a way that makes sense.

Participant 4: Work on your personal brand—identify constraints preventing you from securing a stretch assignment. Hone your capabilities as you're going forward. That's 2009. We're making progress. I let go of it. It's not my cause. My cause is mentoring as much kids and women I can. I now look at things

differently. Different set of strategies and solutions. Compare the inner game of golf to the inner game of leadership. How you'll do is in your head.

Working out—if you joined a gym and got in shape, you'd look for feedback [sore muscles] measured through some level of discomfort. We [women] lose our confidence, draw conclusions, and are willing to make a U-turn. If you're struggling, we should welcome this. If you don't have sore abs at work, ask yourself how many years of same experience you have.

Analysis of Interview Question 11

All four executives enjoyed answering this question. They were clearly active at mentoring other aspiring leaders, so many of them had a canned response. However the response was delivered, each piece of advice was a nugget that can be applied to all aspiring leaders, regardless of gender. Continuously learn, take risks, be fearless, have self-confidence, have a positive, can-do attitude, out-perform others, build a solid reputation, recognize and reward others, get and give mentoring, know your priorities, don't be afraid of the lateral move, build all sets in your tool kit, have an unstoppable attitude, model the best behaviors, be able to articulate your results in a way that makes sense, work on your personal brand, and look for feedback.

Nothing described by any of these leaders came as a complete surprise. Certainly Participant 2's response was more in line with Buckingham and Clifton (2001), *Now Discover your Strengths*, when she said do what you do well: "To avoid your strengths and to focus on your weaknesses isn't a sign of diligent humility. It is almost irresponsible" (p. 126). Other leaders often tell individuals to work on their weaknesses and take stretch assignments outside of their comfort zone, while this leader was adamant

that individuals should love what they do, know their priorities, and do what they do well. If anything, that was the biggest point raised that wasn't expressed by the other executives.

Interview question 12. Is there anything you would like to add that I may not have asked regarding your journey to achieve your current level of senior leadership, any obstacles faced along the way, or advice you would give others aspiring to a senior leadership position within the aerospace and defense industry?

Participant 1: For women, I believe it's extraordinarily important to learn to communicate succinctly. The language of leaders is storytelling. People often get discouraged while climbing the ladder, but never take no for an answer. Also, make sure you complete a leadership 360 evaluation, understand what your areas for improvement are, and bridge those gaps.

Participant 2: Regarding ranking and rating. I would take away the label we put on people. 90% of people are discouraged, 10 % have unrealistic expectations.

Participant 3: A piece of advice I give is to follow your compass, not your clock. Follow your path, and don't rush it. We do a better job of managing expectations here at this company. Work with talent acquisition and understand that the newest generation to enter the workforce wants your job, and feel you're the problem. One cardinal rule to become an executive and really earn your stripes is to build something, break it, and be able to fix it. All of these steps only come with time, so be patient.

Participant 4: I can't keep track of the number of mistakes I've made. Many opportunities I could have said I'm not cut out for this. Get ready to be uncomfortable, and change your opinion on what discomfort means. Not a question of your capability, or fit. If you're losing confidence in yourself—the leadership has confidence in you—get over it! It's changing so much—women must be close to technology to be leaders in aerospace and defense going forward. There are tremendous opportunities. I'm concerned there are not a lot of women in information technology. In other science fields I'm encouraged, for example a majority of veterinarians are women. It's science, it's technical, and competitive. I haven't seen those patterns change much in aerospace and defense. Smart women are doing great things all over, and hopefully, the next generation of leaders won't be underserved. As an observation, as I rose in my career, many of my leaders had daughters. They pulled me along and gave me opportunities, as they had that correlation, listening to their daughters at home, and thinking twice. What's interesting—fast forward 20 years—these leaders are all retiring, or have retired, and we no longer have that kind of social dynamic. That's where good ole boy network comes into play—all my champions that moved me around and gave me opportunities are gone, and I didn't cultivate that next layer. Another piece of advice, don't go into situation where the chemistry is bad [e.g., working for difficult people]. But a corollary is it's inevitable you will work for people where there is little chemistry, or a low level of trust: Never walk into it; when it does happen, find effective ways to make it constructive and positive. I believe you can learn a lot. I learned more about what not to do, then what to do. I continued to

learn what not to do. Make people feel included. Be prepared. A former mentor once told me an organization is designed perfectly to achieve the result it gets.

Analysis of Interview Question 12

Participant 1 emphasized the need to communicate succinctly, tell stories (the language of leaders' is storytelling), never take no for an answer, and get feedback and bridge those gaps. She is the executive of Asian descent. She likely realized early in her career the importance of speaking clearly, being assertive, and receiving frequent feedback on areas in which she could improve. This strategy has clearly served her well, as she has been an executive for 6 years and is currently the Chief Technology Officer for the company.

Participant 2 gave an unrelated response, mostly because of the time crunch that was experienced at the conclusion of the interview. The time allocated for the interview had expired, and her assistant was pulling her to another meeting. She quickly rattled off a thought she had, which may have been related to her next meeting, or in response to some dialogue she had with the researcher between questions.

Participant 3 made it to the executive ranks at a young age. She is clearly a high achiever and willing to take risks. The advice she offered cautioned others who try to emulate her success to be patient and to follow their compass, not their clock. This is valuable advice, as many executives at this aerospace and defense company who lacked a strong foundation before taking on their roles, lasted a short period of time. The stakes are high at that level, particularly at ADC1.

Participant 4 challenged all aspiring leaders to be ready to be uncomfortable. She also touched upon additional thoughts she hadn't previously expressed in discussing

possible reasons why there were so few female executives in the aerospace and defense industry. As an observation, she noted while she was rising up the corporate ladder, many of her bosses had daughters. This perhaps contributed to their willingness to give her a chance. Participant 4 is quick to point out many of these leaders have since retired, and, therefore, she has a fear of a return to the good ole boy network. Additionally, she provided advice on how to deal with difficult people. Her closing thoughts show a deep, passionate understanding of this topic. She was the most articulate and exhaustive of the four executives interviewed regarding possible reasons why so few women have attained an executive leadership position within the aerospace and defense industry.

Table 5

Summary of Coding System Results

Barriers for obtainment of an executive leadership position	Supporting View Code	Exec 1	Exec 2	Exec 3	Exec 4
1. Behavior—expected to act like a man	S1	X			X
2. Mommy track—time off to start/have a family	S2	X	X	X	X
3. Pipeline theory—Haven't been in the pipeline long enough	S3		X	X	
4. Type of assignment given—set up for failure; low visibility, high risk	S4				
5. Good Ole Boy Network—not in the inner circle	S5			X	X

(table continues)

Barriers for obtainment of an executive leadership position	Supporting View Code	Exec 1	Exec 2	Exec 3	Exec 4
6. Mandate—lack of quota or mandate	S6				
7. Other	S7		X		

Several factors emerged as important and heavily influenced the career progression for each of the four female executive participants for this study. The results of the study indicate that even though the female executives didn't have a defined career plan, there were common themes for how they obtained their level of leadership. The leaders spoke about the importance of continuously learning, taking risks, being fearless, having self-confidence, having a positive can-do attitude, outperforming others, building a solid reputation, recognizing and rewarding others, getting mentored and providing mentoring, knowing their priorities, not being afraid of the lateral move, building all sets in their tool kits, having an unstoppable attitude, modeling the best behaviors, being able to articulate results in a way that makes sense, working on their personal brand, and continually looking for feedback.

Summary of Research Results

Regarding why so few women in the aerospace and defense industry have achieved the rank of vice president, all four executives felt that the mommy track played a role. Taking time off to start a family and the possible lack of a support system in place was a common theme presented by all four leaders. This is more indicative of the choice of being an executive lying in the hands of the aspiring female leader. This raises a broader ethical issue: is it fair that women are potentially penalized for choosing to have

a family rather than continually put in long hours as do their male counterparts? Of the executives, two felt being expected to act like a man played a role. The need to be aggressive, assertive, and speak up in meetings was regarded as important. Of the executives, one touched upon the pipeline theory and the lack of women with technical degrees as reasons so few women have made it to the executive ranks within the aerospace and defense industry. Of the four executives, two touched upon the male-dominated industry and gender viewpoints as indicative of the existence of a good ole boy network. One of them was detailed in her response, based on personal observation while rising up the corporate ladder. Only one of the executives touched upon the need for leaders to have the courage to pick others who don't look like them. None of the executives talked about the need for a quota system or spoke about the effectiveness of diversity systems that have been in place for minorities and female employees at all major aerospace and defense companies. None of the leaders spoke about being given assignments in which they felt they were deliberately set up for failure, or put into a low-visibility, high-risk role. Perhaps this didn't apply to them because all four of these leaders made it to the executive ranks within the aerospace and defense industry. Perhaps if the study was expanded to include directors and senior managers, this response would have been identified.

Each of these executives has a unique leadership style. Participant 1 has an inclusive style, is goals driven, understands priorities, and believes in the value of a mentor or coach. Participant 2 was deeply impacted by a book she read years earlier titled *Servant Leadership* by Robert Greenleaf. She believes her role as a leader is to set strategy and content, and get out of the way. She believes in developing talent, and then

eliminating barriers. She also believes as you rise in your career, you have to have an ability to communicate and connect with people. Participant 3 believes in consistency, and having alignment with values and behaviors. She holds people accountable, and believes in an inclusive and collaborative environment. She also believes that an organization should recognize and reward key contributors who exhibit positive values, behaviors, and quality of work. Participant 4 also has a collaborative style, she is detailed oriented, focuses on building relationships, and believes that she learns by exposure to amazing people.

All four executives cited being collaborative, inclusive, and building relationships as key attributes that they feel have contributed to the success they've had in their careers. These are attributes that can be applied by all aspiring leaders, regardless of gender.

The findings of this study build on similar studies of Hudak (2000), Tischler (2004), Tacawy (2006), and others in the barriers that are perceived by women as they move up the corporate ladder. Female leaders have indicated they aspire to move into executive leadership roles, but are faced with personal and professional barriers. The challenges include the lack of a support system in balancing the needs of a career and family.

The findings of this study support and, at times, highlight inconsistencies in existing literature related to the upward mobility of women seeking executive leadership positions. The findings also highlight the universal nature of the attributes required to obtain a senior leadership role, and the myriad of paths available to get there.

Implications and Recommendations for the Aerospace Industry

The manner in which the four executives obtained their senior leadership positions, obstacles encountered along the way, and advice they would give to others were the focus of this study. The implications of the study concerning perceptions of upward mobility of four women within the aerospace and defense industry did not come as a surprise as the researcher has been employed in this industry for the past 15 years. There is an indication that women who chose to rise up the ladder, and are willing to make the sacrifices required to get there, can ultimately secure a senior leadership role. There may be other hurdles encountered, such as the facts that the number of executive roles is limited and that competition is fierce, but it appears that women who have the persistency, tenacity, drive, ambition, and desire to get there, will eventually get there. Climbing the corporate ladder may require a geographic move and additional sacrifices, but it is possible. The results of this study have shown that four women from completely unique backgrounds were able to do it, and the researcher feels confident many other women can also reach the pinnacle of their respective fields.

One of the most notable implications of this study is that the advice offered by the four executives who were interviewed is universally applicable to anyone aspiring to a senior leadership role, regardless of gender. Still aerospace and defense companies still have a long way to go to equalize the gender gap that exists at senior leadership positions. Studies such as this, however, can continue to raise awareness on the need to address the gender gap and gender equality challenges faced by women on a daily basis.

The researcher's intent is that by having the participants identify their most significant barriers or obstacles encountered along their career paths, it is recommended

aspiring leaders learn from these experiences to be better prepared, should they encounter them as they ascend the corporate ladder.

Finally, the results of this study should help more than just women aspiring to an executive position at an aerospace and defense company. Men and minorities may also be able to extract nuggets from the lived experiences of these four female executives, and be able learn just as much as female aspiring leaders.

Recommendations for ADC1

Based on the findings of the study, and based on the implications and recommendations for the aerospace industry in general, the researcher recommends that ADC1 conduct a LPI assessment across a broader population of employees including all executives and select directors and senior managers. This will provide data from a larger population, and therefore a level of statistical significance. Based on the findings from the data, training modules should be developed on the areas identified as having the largest gaps. In addition, training modules should be developed in the areas of collaboration, inclusion, and relationship building as these were identified as key attributes by all four executives as having contributed to the advanced success they've had in their careers.

Additionally it is recommended that ADC1 separately review gender diversity during their annual HR review process. Since there are only three female executives on the leadership team of a population of 19 at ADC1's Southern California divisional headquarters, this is not consistent with the male to female ratio at ADC1.

Recommendations for Further Research

The findings of this study were limited to the experiences of four female executives employed at a single aerospace and defense company. Recommendations for future research include the following:

1. Rather than limiting a study to female executives, explore a study that interviews both male and female executives. This could help identify common themes, regardless of gender, or assist in pinpointing qualities, attributes, or unique traits that are gender specific;
2. Consider interviewing females from frontline supervisors to section managers, to department manager, and center directors, instead of the approach utilized in this study, which focused on the lived experiences of female executives;
3. Consider interviewing female leaders at multiple aerospace and defense companies;
4. Interview female executives located at several geographic locations (both domestic and international), and try to determine the role societal culture plays in the upward mobility of women;
5. Consider conducting a purely quantitative study, where a large sample size of employees (both male and female) are queried on their thoughts of the existence of a glass ceiling, barriers faced by women trying to climb the corporate ladder, and possible reasons why so few women have achieved an executive position in the aerospace and defense industry;
6. Further research aimed at comparing female executives from other male dominated industries with female executives within the aerospace industry;

7. Performing research focused on pay differences between males and females at the same level of management. Do female executives within the aerospace and defense industry make as much as their male counterparts?

Concluding Thoughts

Data was collected by conducting in-depth interviews conducted between April 20 and April 24, 2009, with four executives at a single aerospace and defense company with major operations in Southern California (ADC1). In addition, each executive was asked to complete a LPI assessment (Appendix F) and results were provided to the researcher at least 1 day prior to the scheduled interview. This approach enabled the researcher to gather demographic data, and understand the participants' leadership styles prior to participation in the in-depth interview. During the interview the participant's unique career paths including barriers and obstacles encountered while on their leadership journey and advice they would offer others seeking to obtain the same level of leadership was discussed. Four female leaders participated in this process, and each became an executive through unique career paths. They each encountered personal and professional obstacles, came from diverse backgrounds in terms of education and upbringing, but did have some common themes for what they believed contributed to the success they've achieved in their careers. Several factors emerged as important and heavily influenced the career progression for each of the four female executive participants for this study. The results of the study indicate that although the female executives didn't have a defined career plan, there were common themes for how they obtained their level of leadership. The leaders spoke about the importance of continuously learning, taking risks, being fearless, having self-confidence, having a

positive can-do attitude, outperforming others, building a solid reputation, recognizing and rewarding others, getting mentored and providing mentoring, knowing their priorities, not being afraid of the lateral move, building all sets in their tool kits, having an unstoppable attitude, modeling the best behaviors, being able to articulate results in a way that makes sense, working on their personal brand, and continually looking for feedback. All four executives cited being collaborative, inclusive, and building relationships as key attributes that they feel have contributed to the success they've had in their careers. These are attributes that can be utilized by all aspiring leaders, regardless of gender.

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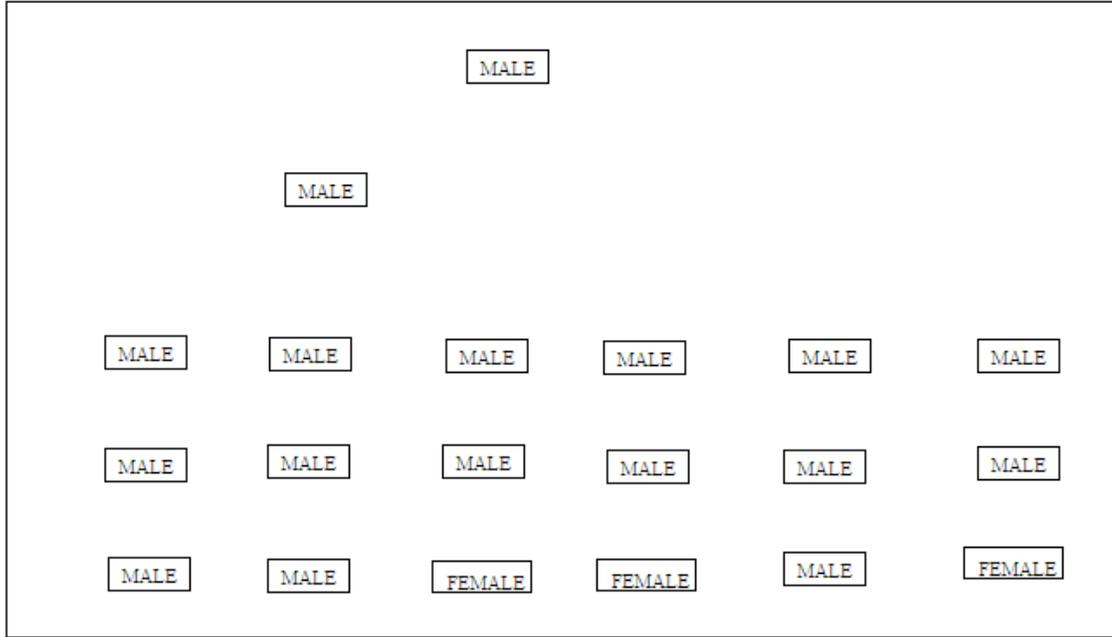
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Appendix A

ADC1 Leadership Team



- ADC1 Southern California divisional leadership team
- 19 Executives (vice-president or higher)
- 16 male, 3 female
- Data as of 5/2009

Appendix B

Protection of Human Subjects



Appendix C

Female Executive Participation Cover Letter

February 25, 2009

Dear ADC1 Senior Leader:

I am a doctoral student in the Education - Organizational Leadership program at Pepperdine University conducting research for my dissertation. The topic of my dissertation is *Gender Equality Explored within the Aerospace and Defense Industry*. I am inviting you to voluntarily participate in my study, but you are in no way obligated. The study is supported by [REDACTED], ADC1 Vice-President of Human Resources and [REDACTED], ADC1 Vice-President of Legal & Business Ethics and Compliance. [REDACTED] is also a member of my dissertation committee. The LPI survey may take 15 – 30 minutes to complete. Upon completion, please return the surveys in a ADC1 confidential envelope, no later than March 11, 2009.

Should you have any questions, please do not hesitate to contact me at [REDACTED] or sgandhi@ADC1.com. Thank you in advance for your time and participation.

Sincerely,

Shreyas Gandhi, M.S., MBA
Doctoral Candidate

[REDACTED]

Cc: [REDACTED]
ADC1 Vice-President, Human Resources

[REDACTED]
ADC1 Vice-President, Legal & Business Ethics and Compliance

Appendix D

Informed Consent Letter

February 25, 2009

Dear ADC1 Executive:

I am a doctoral student in the Education - Organizational Leadership program at Pepperdine University conducting research for my dissertation. The topic of my dissertation is *Gender Equality Explored within the Aerospace and Defense Industry*. I am inviting you to voluntarily participate in my study, but you are in no way obligated. The study is supported by [REDACTED], ADC1 Vice-President of Human Resources and [REDACTED], ADC1 Vice-President of Legal & Business Ethics and Compliance. [REDACTED] also a member of my dissertation committee.

The purpose of this study is to understand what it is like to be a female senior executive leader at ADC1 with the leadership practices as identified by Kouzes and Posner's Leadership Practices Inventory (LPI). This study will help to develop an understanding of the lived experiences of these women, to learn how they achieved this level of senior leadership, and to understand what it is like for them to be a small minority at the senior executive level. This study may result in policy recommendations for ADC1's ADC1 division to ensure the population of senior leaders is more representative of the broader population of employees within the division.

Your participation in this study involves your completion of one hand-written, self-report survey (LPI). In total, you will allocate approximately 15–30 minutes to complete the instrument. There are little or no risks associated with this study. As the facilitator of this study, I have worked with appropriate ADC1 personnel to make you are as comfortable as possible at all times. There are no foreseeable risks greater than those encountered in your daily life.

All information you provide will remain confidential. I will keep the information in a locked drawer in my office. You will not be audio taped or videotaped at any time. Your survey will be assigned a code number that will help me keep data collection sheets organized. I will be the only person who will have access to both the data sheets and the participant code list. Please DO NOT put your name on the instrument. In addition, I will only report data in summary form and will not report individual scores.

It is important that you have been informed that your completion and submission of the survey instrument indicates your consent to participate.

Your participation in this study is voluntary and you may withdraw from it at any time or refuse to take part in any activity in which you feel uncomfortable. It is my responsibility to answer all questions and concerns about the study and you have the right to request a summary or copy of the results of the study.

Should you have any questions, please do not hesitate to contact me at [REDACTED] or sgandhi@ADC1.com. Thank you in advance for your time and participation.

Sincerely,

Shreyas Gandhi, M.S., MBA
Doctoral Candidate

[REDACTED]

Cc: [REDACTED]
ADC1 Vice-President, Human Resources

[REDACTED]
ADC1 Vice-President, Legal & Business Ethics and Compliance

Appendix E

Interview Questionnaire

A. Section 1 – Background, Career Progression, and Leadership Style

To start, I would like to learn about your professional experience and career history from the beginning to present.

1. What attracted you to your profession?
2. How has your career developed over time?
3. How many years into your career did you decide you wanted to get into management?
4. How long did it take you to obtain your 1st executive position?
5. What education or training enabled you to obtain your leadership position?
6. What do you believe are the top three factors that contributed most to your career success?
7. Is there anything unique about the aerospace and defense industry that made it more or less difficult for you to obtain your current level of senior leadership?
8. What is your leadership style, and do you feel that contributed to the success you've had in your career?

B. Section 2 - Barriers/Obstacles

9. What are some of the most difficult challenges you faced personally or professionally along your journey, and how did you overcome these?
10. In your opinion what are possible reasons why so few women have

obtained your level of senior leadership?

C. Section 3 - Behavioral Expectations and Additional Thoughts

11. What suggestions would you give or have you given other women who are seeking management / senior leadership positions in terms of attitude, skills, behavioral expectations, experience or education?

12. Is there anything you would like to add that I may not have asked regarding your journey to achieve your current level of senior leadership, any obstacles faced along the way, or advice you would give others aspiring to a senior leadership position within the aerospace and defense industry?

Appendix F

Leadership Practices Inventory (LPI) Assessment

1. Years of service at your Aerospace and Defense Company:

0 – 5 6- 10 11- 15 16 – 20 > 20

2. Total years professional work experience:

< 15 16- 20 21- 25 26 – 30 > 30

3. Highest level of education achieved (check one): High School Bachelors

Masters Doctorate None of the above

Instructions

On the next two pages are thirty statements describing various leadership behaviors. Please read each statement carefully. Then rate *yourself* in terms of *how frequently* you engage in the behavior described. *This is not a test* (there are no right or wrong answers). The usefulness of the feedback from this inventory will depend on how honest you are with yourself and how frequently you *actually* engage in each of these behaviors.

Consider each statement in the context of your executive leadership position. As you respond to each statement, maintain a consistent perspective to your particular organization. The rating scale provides five choices. Circle the number that best applies to each statement:

- (1) If you RARELY or SELDOM do what is described
- (2) If you do what is described ONCE IN A WHILE
- (3) If you SOMETIMES do what is described
- (4) If you OFTEN do what is described
- (5) If you VERY FREQUENTLY or ALMOST ALWAYS

In selecting the response, be realistic about the extent to which you *actually* engage in the behavior. Do *not* answer in terms of how you would like to see yourself or in terms of what you should be doing. Answer in terms of how you *typically* behave.

For example, the first statement is “I set a personal example of what I expect from other people.” If you believe you do this *once in a while*, circle the number 2. If you believe you do this *often*, circle the number 4. Select and circle only one option (response number) for each statement.

Please respond to every statement. If you can’t respond to a statement (or feel that it doesn’t apply), circle a 1. When you have responded to all thirty statements, please turn to the response sheet on the back page and transfer your responses as instructed.

Leadership Practices Inventory

How frequently do you *typically* engage in the following behaviors and actions?
Circle the number to the right of each statement, using the scale below, that best applies.

	1	2	3	4	5
	RARELY OR SELDOM	ONCE IN A WHILE	SOMETIMES	VERY OFTEN	FREQUENTLY
1. I set a personal example of what I expect from other people.	1	2	3	4	5
2. I look ahead and communicate about what I Believe will affect us in the future.	1	2	3	4	5
3. I look around for ways to develop and challenge my skills and abilities.	1	2	3	4	5
4. I foster cooperative rather than competitive relationships among people I work with.	1	2	3	4	5
5. I praise people for a job well done.	1	2	3	4	5
6. I spend time and energy making sure that People in our organization adhere to the principles and standards we have agreed upon.	1	2	3	4	5
7. I describe to others in our organization what we should be capable of accomplishing.	1	2	3	4	5
8. I look for ways that others can try out new ideas and methods.	1	2	3	4	5
9. I actively listen to diverse points of view.	1	2	3	4	5
10. I encourage others as they work on activities and programs in our organization.	1	2	3	4	5
11. I follow through on the promises and Commitments I make in this organization.	1	2	3	4	5
12. I talk with others about sharing a vision of how much better the organization could be in the future.	1	2	3	4	5
13. I keep current on events and activities that might affect our organization.	1	2	3	4	5
14. I treat others with dignity and respect.	1	2	3	4	5
15. I give people in our organization support and express appreciation for their contributions.	1	2	3	4	5

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	1	2	3	4	5
	RARELY OR SELDOM	ONCE IN A WHILE	SOMETIMES	VERY OFTEN	FREQUENTLY
16. I find ways to get feedback about how my actions affect other people's performance.	1	2	3	4	5
17. I talk with others about their own interests can be met by working toward a common goal.	1	2	3	4	5
18. When things do not go as we expected, I ask, "What can we learn from this experience?"	1	2	3	4	5
19. I support the decisions that other people in our organization make on their own.	1	2	3	4	5
20. I make it a point to publicly recognize people who show commitment to our values.	1	2	3	4	5
21. I build consensus on an agreed-upon set of values for our organization.	1	2	3	4	5
22. I am upbeat and positive when talking about what our organization aspires to accomplish.	1	2	3	4	5
23. I make sure that we set goals and make specific plans for the projects we undertake.	1	2	3	4	5
24. I give others a great deal of freedom and choice in deciding how to do their work.	1	2	3	4	5
25. I find ways for us to celebrate accomplishments.	1	2	3	4	5
26. I talk about the values and principles that guide my actions.	1	2	3	4	5
27. I speak with conviction about the higher purpose and meaning of what we are doing.	1	2	3	4	5
28. I take initiative in experimenting with the way we can do things in our organization.	1	2	3	4	5
29. I provide opportunities for others to take on leadership responsibilities.	1	2	3	4	5
30. I make sure that people in our organization are creatively recognized for their contributions.	1	2	3	4	5

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Transferring the Responses

After you have responded to the thirty statements on the previous two pages, please transfer your responses to the blanks below. This will make it easier to record and score your responses.

Notice that the numbers of the statements are listed *horizontally* across the page. Make sure that the number you assigned to each statement is transferred to the appropriate blank. Remember to fill in a response option (1,2,3,4,5) for every statement.

- | | | | | |
|-----------|-----------|-----------|-----------|-----------|
| 1. _____ | 2. _____ | 3. _____ | 4. _____ | 5. _____ |
| 6. _____ | 7. _____ | 8. _____ | 9. _____ | 10. _____ |
| 11. _____ | 12. _____ | 13. _____ | 14. _____ | 15. _____ |
| 16. _____ | 17. _____ | 18. _____ | 19. _____ | 20. _____ |
| 21. _____ | 22. _____ | 23. _____ | 24. _____ | 25. _____ |
| 26. _____ | 27. _____ | 28. _____ | 29. _____ | 30. _____ |

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Appendix G

Approval to Administer LPI Assessment

KOUZES POSNER INTERNATIONAL

15419 Banyan Lane
Monte Sereno, California 95030
FAX: (408) 354-9170

January 19, 2009

Ms. Shreyas Gandhi


Dear Shreyas:

Thank you for your request to use the Leadership Practices Inventory (LPI) in your dissertation. We are willing to allow you to **reproduce** the instrument in written form, as outlined in your letter, at no charge, with the following understandings:

- (1) That the LPI is used only for research purposes and is not sold or used in conjunction with any compensated management development activities;
- (2) That copyright of the LPI, or any derivation of the instrument, is retained by Kouzes Posner International, and that the following copyright statement is included on all copies of the instrument: "Copyright © 2003 James M. Kouzes and Barry Z. Posner. All rights reserved. Used with permission.";
- (3) That one (1) **electronic** copy of your dissertation and one (1) copy of **all** papers, reports, articles, and the like which make use of the LPI data be sent **promptly** to our attention; and,
- (4) That you agree to allow us to include an abstract of your study and any other published papers utilizing the LPI on our various websites.

If the terms outlined above are acceptable, would you indicate so by signing one (1) copy of this letter and returning it to us. Best wishes for every success with your research project.

Cordially,


Barry Z. Posner, Ph.D.
Managing Partner

I understand and agree to abide by these conditions:

(Signed)  _____ Date: 1/23/09

Appendix H

IRB Exemption approval

PEPPERDINE UNIVERSITY

Graduate & Professional Schools Institutional Review Board
6100 Center Drive, Los Angeles, California 90045 ■ 310-568-5600

April 8th, 2009

Shreyas Gandhi


Protocol #: E0309D15

Project Title: *Gender Equality Explored within the Aerospace and Defense Industry*

Dear Mr. Gandhi:

Thank you for submitting your application, *Gender Equality Explored within the Aerospace and Defense Industry*, for exempt review to Pepperdine University's Graduate and Professional Schools Institutional Review Board (GPS IRB). The IRB appreciates the work you and your faculty advisor, Dr. Michelle Rosensitto, have done on the proposal. The IRB has reviewed your submitted IRB application and all ancillary materials. Upon review, the IRB has determined that the above entitled project meets the requirements for exemption under the federal regulations (45 CFR 46 - <http://www.nihtraining.com/ohsrsite/guidelines/45cfr46.html>) that govern the protections of human subjects. Specifically, section 45 CFR 46.101(b) (2) states: (b) Unless otherwise required by Department or Agency heads, research activities in which the only involvement of human subjects will be in one or more of the following categories are exempt from this policy:

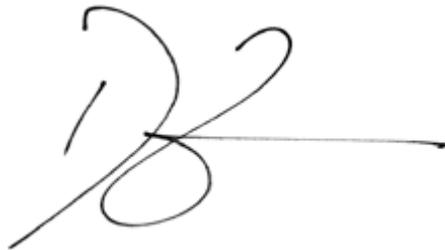
Category (2) of 45 CFR 46.101, research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: a) Information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and b) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Your research must be conducted according to the proposal that was submitted to the IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed

changes in your research protocol, please submit a **Request for Modification Form** to the GPS IRB. Because your study falls under exemption, there is no requirement for continuing IRB review of your project. Please be aware that changes to your protocol may prevent the research from qualifying for exemption from 45 CFR 46.101 and require submission of a new IRB application or other materials to the GPS IRB.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite our best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the GPS IRB as soon as possible. We will ask for a complete explanation of the event and your response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the GPS IRB and the appropriate form to be used to report this information can be found in the *Pepperdine University Protection of Human Participants in Research: Policies and Procedures Manual* (see link to “policy material” at <http://www.pepperdine.edu/irb/graduate/>). Please refer to the protocol number denoted above in all further communication or correspondence related to this approval. Should you have additional questions, please contact me. On behalf of the GPS IRB, I wish you success in this scholarly pursuit.

Sincerely,



Doug Leigh, Ph.D. Associate Professor of Education
Pepperdine University
Graduate School of Education and Psychology
6100 Center Dr. 5th Floor
Los Angeles, CA 90045
dleigh@pepperdine.edu
(310) 568-2389

cc: Dr. Lee Kats, Associate Provost for Research & Assistant Dean of Research,
Seaver College
Ms. Ann Kratz, Human Protections Administrator
Dr. Doug Leigh, Chair, Graduate and Professional Schools IRB
Ms. Jean Kang, Manager, Graduate and Professional Schools IRB
Dr. Michelle Rosensitto
Ms. Christie Dailo

Appendix I

Research Questions, Survey Questions and Descriptive Statistics

Research Questions	4 LPI Scores (Challenging the Process, Inspiring a Shared Vision, Enabling Others to Act, Modeling the Way, Encouraging the Heart, Total Score)	Descriptive Statistics
<p>3. What are the leadership ratings among the four female senior executives at ADC1 as measured by the Leadership Practices Inventory (LPI) (Kouzes & Posner, 2003)?</p>	<p>4 LPI scores:</p> <p>Enable Others to Act (Survey Questions 4, 9, 14, 19, 24, 29)</p> <p>Encourage the Heart Survey (Questions 5, 10, 15, 20, 25, 30)</p> <p>Challenge the Process (Survey Questions 3, 8, 13, 18, 23, 28)</p> <p>Inspire a Shared Vision (Survey Questions 2, 7, 12, 17, 22, 27)</p> <p>Model the Way (Survey Questions 1, 6, 11, 16, 21, 26)</p> <p>Total Score (Survey Questions 1-30)</p>	<p>Means Standard Deviations Range</p>

Research Questions	4 LPI Scores (Challenging the Process, Inspiring a Shared Vision, Enabling Others to Act, Modeling the Way, Encouraging the Heart, Total Score)	Descriptive Statistics
<p>4. How do the four female executives describe their career paths, including their educational experiences, their leadership style, personal or professional obstacles that they may have encountered along the way, and the behavioral expectations placed on them being a female executive?</p>	<p>Career Path (Survey Questions 1, 2, 3, 4, 11, 12)</p> <p>Educational experiences (Survey Questions 1, 2, 3, 5, 6, 7, 10, 11, 12)</p> <p>Leadership Style (Survey Questions 5, 6, 8, 10, 11, 12)</p> <p>Personal or Professional Obstacles (Survey Questions 4, 5, 7, 9, 10, 12)</p> <p>Behavioral Expectations (Survey Questions 5, 6, 7, 9, 10, 11, 12)</p>	Coding System

Appendix J

Letter of Support from ADC1

[REDACTED]

[REDACTED]
Vice President, [REDACTED]
[REDACTED]

[REDACTED]

Letter of Support from [REDACTED] Company

March 6, 2009

Shreyas Gandhi, M.S., MBA
Doctoral Candidate, Organizational Leadership, Pepperdine University

[REDACTED]

Dear Mr. Gandhi,

On behalf of [REDACTED] Company, I am writing this letter to confirm our consent to your doctoral dissertation study: *Gender Equality Explored within the Aerospace and Defense Industry*.

[REDACTED]

As you have explained, the purpose of this study is to understand what it is like to be a female senior executive leader at a major Aerospace and Defense Contractor. This study will help to develop an understanding of the lived experiences of these executives; learn how they achieved this level of senior leadership; and to understand what it is like for them to be a small minority at the senior executive level. Any [REDACTED] data collected, including the output of interviews with [REDACTED] employees, will be owned by [REDACTED] Company and used solely for the purpose of completing this study for your doctoral dissertation. This letter is not consent to publication of the study, which would have to go through a separate review process and is not assured.

The identity of participants will be kept confidential by you, and original data will be kept in a secure location and then destroyed 5 years following completion of the study. As you have outlined, the expectations of the leaders that are asked to participate in your study are as follows:

- Signing an Informed Consent form acknowledging that participation in this study is voluntary.
- Completion of a 30 question Leadership Practices Inventory (LPI) Assessment, by Kouzes and Posner.
- One 30 minute interview in April. I understand the interview cannot be scheduled until approval is secured from Pepperdine University's Institutional Review Board (IRB) protecting human subject research participants.

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Participation by [REDACTED] employees will in fact be voluntary and I cannot assure you of their availability or willingness to participate.

Should you require any further assistance, please do not hesitate to contact me.

Sincerely,

[REDACTED] COMPANY

[REDACTED]

Vice President and General Counsel

[REDACTED]

Appendix K

LPI Survey Results

LPI 5 Practices	Exec 1	Exec 2	Exec 3	Exec 4	Total	Mean	Standard Deviation	Variance	Range
Model the Way	24	24	26	23	97	24.25	1.25831	1.58333	3
Inspire a Shared Vision	29	28	26	26	109	27.25	1.5	2.25	3
Challenge the Process	29	25	25	17	96	24	5.03322	25.33333	12
Enable Others to Act	27	27	25	28	107	26.75	1.25831	1.58333	3
Encourage the Heart	27	28	23	23	101	25.25	2.62996	6.91667	5

Exec # 1

4	5	5	4	5
4	5	5	5	4
4	5	4	4	5
3	4	5	4	5
5	5	5	5	4
4	5	5	5	4
24	29	29	27	27

Exec # 2

4	5	4	5	5
4	5	5	4	5
5	5	3	5	5
3	4	4	4	5
4	4	5	4	4
4	5	4	5	4
24	28	25	27	28

Exec # 3

5	5	3	4	4
5	4	4	4	4
5	4	5	5	4
4	4	5	4	4
4	5	5	4	3
3	4	3	4	4
26	26	25	25	23

Exec # 4

5	5	3	5	3
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3	4	3	4	5
5	4	3	5	5
3	4	4	5	4
4	5	2	5	3
3	4	2	4	3
23	26	17	28	23