Mentoring and Women's Advancement to Leadership in the Information Technology Field:

A Qualitative Case Study

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ABSTRACT

The purpose of the qualitative case study was to explore and identify the patterns and types of obstacles women in the information technology (IT) field experience in advancing to leadership positions and to explore the mentor-mentee relationship of female organizational leaders in the IT field and its effect on the advancement of women to leadership positions. The sample consisted of two groups of women, one in leadership (10 cases) and the other in nonleadership (10 cases) positions, in the IT field in the eastern United States. Content analysis and NVivo 7 software were used to analyze the interview transcripts and observations for common themes. The results revealed (a) mentor-mentee relationships play a key role in women's advancement in the IT field, (b) gender discrimination still exists in the IT field, (c) the old boys' network still exists in the IT field, and (d) there is a lack of mentoring programs and services in the IT field.

DEDICATION

This dissertation is dedicated to the loving memories of my mother, Constance Mae Burnside, and my maternal grandmother, Eugenie Charles, the two female pillars of strength in my life, both of whom played a significant role in my upbringing, in terms of their strength, passion for education, pride, and loyalty to the family. These two women showed me anything is possible and I could achieve whatever I wanted, as long as I put my mind to it and had a good heart. My father, the late Arthur Bell, also played a strong role in my life by emphasizing the importance of education from an early age. After three long years of having no life, I can finally move on to the next phase of what life has in store for me. As my mom wrote in my graduation yearbook, "If at first you don't succeed, try and try and try again." Thanks for being proud of me and always loving me, Mama. Thanks for the memories, "Flumps" and "Auntie"!

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CHAPTER 1: INTRODUCTION

Since the early 1990s, women have steadily moved into the information technology (IT) business field, driven by the opportunity of a challenging, yet rewarding career (Scott-Dixon, 2004; Shuttleworth, 1992) that would allow them to advance to leadership positions. Although women represent approximately 50% of the U.S. workforce, only 12% are in top leadership positions, 15.7% are senior executives, and 12.4% are on the board of directors in 500 of the major U.S. organizations (Wilson, 2004). Studies demonstrated women in the IT field may feel apprehensive and discouraged about advancing to leadership positions (Shuttleworth; Sumner & Niederman, 2003-2004; Wellington, Kropf, & Gerkovich, 2003). Studies reported the female labor force is growing at a fast pace (Baroudi & Igbaria, 1994-1995; Igbaria & Baroudi; 1995; Meyerson & Fletcher, 2000); therefore, women may be afforded increased opportunities to advance to leadership positions, provided that organizations offer additional mentoring programs and support services to their female employees.

The qualitative case study explored and identified the patterns and types of obstacles women in the IT field experience in advancing to leadership positions. The study focused on two groups of women, one in leadership (10 cases) and the other in nonleadership (10 cases) positions, in the IT field in the eastern United States. The case study also explored the mentor-mentee relationship of female organizational leaders in the IT field and its nature on the advancement of women to leadership positions. Chapter 1 presents the general and specific problem, the purpose of the study, the significance of the study, the research method and design used to guide the qualitative case study, the

conceptual or theoretical framework, and the contribution of the qualitative case study to

women who want to advance to leadership positions and build mentoring relationships.

Background

Men traditionally advance to senior leadership positions at a faster rate than

women and earn a higher salary than women in the same position (Gerhart & Rynes,

1991). Although women are advancing to top leadership positions, less than 2% of these

women are in Fortune 500 companies; a disproportionately low number of these women

are in senior organizational leadership positions with respect to the total number of

employees (Wellington et al., 2003; Wentling, 1996). Meyerson and Fletcher (2000)

reported 10% of senior managers in Fortune 500 companies were women and fewer than

4% of the women fell into the ranks of chief executive officers (CEOs), chief operating

officers (COOs), and executive vice presidents.

Since the 1990s, the number of women coming into the labor force rose steadily

(Bennett, 2002; Igbaria & Baroudi, 1995). In 1998, the Catalyst group noted although

men and women are on the same level when entering an organization, within 5 or 6 years

women's careers start to lag behind the careers of the men they started with (O'Neill &

Blake-Beard, 2002). One reason women are slow to advance to leadership positions is

women do not always know leadership positions are available (Wellington et al., 2003,

pp. 18-19). Women are sometimes discouraged from pursuing leadership positions by

their colleagues and management, who feel women will not be able to perform in

leadership positions (Wellington et al.).

Women have made considerable progress in advancing to the same leadership

positions as men, although only a small percentage of women have achieved senior

leadership positions (Miller & Lemons, 1998; Wentling, 1996). "Although there has been a sizeable increase in the percentage of female corporate officers in the United States in recent years, the number of women who hold line officer positions . . . is still meager compared with men holding such jobs" (Wah, 2000, p. 7). Gregory (2003) found it unlikely that during a woman's work career she would be promoted to a line officer position that might ultimately lead to a senior leadership position. Although women continue to be underrepresented in leadership positions, better opportunities may arise for women to advance to leadership positions in other industries, which may increase the number of female mentors (Ragins, Townsend, & Mattis, 1998).

The low number of women in leadership positions leads to fewer female mentors (Bass, 1990). The small number of available female mentors in leadership positions limits the role models and opportunities for women to advance to leadership positions (Ragins et al., 1998). The opportunities for women to advance to leadership positions are generally hampered by stereotyping, a shortage of female mentors, "informal networks of support" (Rhode, 2003, p. 7), and a rigid working environment. In a study of female leaders, Wellington et al. (2003) determined some of the barriers for women advancing to leadership positions included (a) exclusion from informal networks, (b) stereotyping, (c) lack of mentoring, (d) shortage of role models, (e) commitment to personal or family responsibilities, (e) lack of accountability on the part of senior leadership, and (f) limited opportunities for visibility (p. 19).

CIO Insight reported the proportion of male IT leaders greatly exceeds the proportion of female IT leaders by a margin of 86.1 to 13.9% (D'Agostino, 2003). Although women have made considerable progress in advancing to senior organizational

leadership positions, such as CEOs, chief information officers (CIOs), and senior vice presidents in the IT field, differences in gender, demographics, behavior, and treatment have created barriers in the workplace (Kaminski & Reilly, 2004). As a result of these barriers, women in the IT field continue to be underrepresented (Rhode, 2003; Sumner & Niederman, 2003-2004), especially in senior leadership positions (Baroudi & Igbaria, 1994-1995; Igbaria & Parasuraman, 1997; Scott-Dixon, 2004).

The underrepresentation of women may occur because in most cases women rarely attain leadership roles in the IT field, in IT companies, or in companies with IT divisions (Shuttleworth, 1992). People in other industries who may find this qualitative case study useful include (a) women in IT who want to advance to leadership positions, (b) female leaders who want to help other women break the glass ceiling and advance to leadership positions, (c) all leaders, male and female, who want to create opportunities for advancement for women in IT and in other fields where women experience difficulties in breaking the glass ceiling, and (d) all leaders, male and female, who want to create opportunities for advancement for members of other underrepresented groups in terms of the mentoring and support needed to advance to leadership positions. By understanding the issues and support needed for employees to advance to leadership positions, organizational leaders in the IT and non-IT fields may use the qualitative case study as a point of reference to guide employees to advancing to the top of their fields.

The advancement of women to leadership positions is an important social concern to address for women who want to break through the obstacles of stereotyping, exclusion from networks, a lack of mentoring, and a shortage of role models. Women who are just entering the workforce should understand barriers to advancing to leadership positions

and equality with men in the workplace still exist (Gregory, 2003). An increase in the number of women in leadership positions will give rise to new strategies for existing organizations. An increase in the number of women in leadership positions may change responsibilities from one particular group to many groups, which will provide both men and women equal opportunities to become leaders (Wilson, 2004).

Problem Statement

Historically, research showed women have not advanced as rapidly as men into top leadership positions (Lyness & Thompson, 2000). The gender gap in the workplace is even more prevalent in the IT field, where there is a predominance of male employees in both management and nonmanagement positions (Kaminski & Reilly, 2004). The disparity of career advancement and salary between men and women is even greater for women who work in the IT field, throughout all levels in the organization (Kaminski & Reilly). The specific problem for the qualitative case study is a lack of sufficient knowledge about the patterns and types of obstacles women in the IT field experience in the workplace, which may make it more difficult for organizations to address barriers to women's advancement in the workplace. A richer and more detailed understanding of women's experiences may help organizations build support systems and guidance programs for women to use and advance steadily through the management ranks. More female leaders in the IT field may give rise both to more female mentors and mentees and to increased leadership opportunities leading to top management positions.

The qualitative case study explored and identified the patterns and types of obstacles women in the IT field experience in advancing to leadership positions. The study focused on two groups of women, one in leadership (10 cases) and the other in

nonleadership (10 cases) positions, in the IT field in the eastern United States. The case

study also explored the mentor-mentee relationship of female organizational leaders in

the IT field and its nature on the advancement of women to leadership positions. The

qualitative case study used several data collection methods, such as observations,

interviews (Creswell, 2002), and pretesting of the instrument. The population for the

study consisted of women in leadership and nonleadership positions in the IT field.

<center>Purpose Statement</center>

The purpose of the qualitative case study was to explore and identify the patterns

and types of obstacles women in the IT field experience in advancing to leadership

positions. The study focused on two groups of women, one in leadership (10 cases) and

the other in nonleadership (10 cases) positions, in the IT field in the eastern United

States. The case study also explored the mentor-mentee relationship of female

organizational leaders in the IT field and its effect on the advancement of women to

leadership positions.

A qualitative case study was selected over other qualitative methods because the

basis of the qualitative case study was to explore the specific obstacles women in the IT

field experience in advancing to leadership positions by analyzing data collected through

a variety of methods to develop an in-depth understanding about a particular

phenomenon. In a qualitative case study design, certain themes can be identified by

reviewing the sequencing of events and paying attention to details (Neuman, 2003).

These themes help to identify the patterns and types of obstacles, as well as the nature of

the mentor-mentee relationship of female organizational leaders in the IT field.

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The data collection methodology for the qualitative case study design included observations, interviews (Creswell, 2002), and pretesting of the instrument to obtain an in-depth understanding of the problem. The data analysis methods of content analysis and NVivo 7 software were used to analyze the data from the interviews and observations of the participants for common themes in the experiences of female leaders in IT organizations and the nature of their mentoring relationships. The case study included an in-depth analysis of women in the IT field in the eastern United States.

Structured interviews and observations were conducted with the sample of 20 women. A subsample of 5 women in leadership positions in the IT field was selected from the group of 10 leaders to participate in semistructured in-depth interviews and observations. In the qualitative case study, the patterns and areas for improvement in mentoring relationships and new paths for women to take in breaking through to leadership positions within IT organizations were described and developed.

<div align="center">Significance of the Study</div>

In the United States, "the technology sector is the fastest-growing industry . . . and the [IT] field has been the biggest driver of economic expansion in recent years. . . . [M]en have traditionally dominated this industry" (Book, 2001, p. 7). The shortage of women in the labor force in the IT field (Baroudi & Igbaria, 1994-1995; Lee, 2003; Moody, Beise, Woszczynski, & Myers, 2003; Shuttleworth, 1992; Wellington et al., 2003; Wentling, 1996) and women breaking through the glass ceiling (Blake-Beard, 2001; Walkup, 2000) were the subjects of extensive research. The research literature on women in the workforce does not address the obstacles women in the IT field experience in advancing to leadership positions. Exploration and identification of the patterns and

types of obstacles women in the IT field encounter in advancing to leadership positions is important because organizational leaders in the IT field may use this information to show women how to overcome obstacles in the workplace.

An understanding of the nature of the mentor-mentee relationship and how this relationship influences the advancement of women to leadership positions may give organizational leaders in the IT field guidance on the actions they should take to advance women to leadership positions. By examining and exploring patterns associated with women in the IT field, the study findings may also provide information that may help women IT and non-IT leaders and nonleaders, as well as women in other organizational fields, advance to leadership positions and become mentors for new and existing employees in the workplace. The study results may be transferable to women in leadership positions outside of the IT field because the women may have experiences similar to women in the IT field.

<div align="center">Significance of the Study to Leadership</div>

The results of the study expand the existing body of knowledge about leadership, women in the workplace, and female mentoring relationships. The results may raise the awareness of the patterns and difficulties encountered in advancing to leadership positions and the perception of how mentoring programs and services affect movement from one leadership position to another. The results of the qualitative case study may expand the current knowledge base in the literature of women in the workplace by providing leaders with an understanding of the benefits of advancing women to leadership positions (Morrison & Von Glinow, 1990). Female leaders who advance to leadership positions may bring distinctive qualities, such as inspiring other leaders, an

ability to learn from mistakes, a different problem-solving style that incorporates a team approach, and a readiness to take and accept risks (Greenberg & Sweeney, 2005). The female leaders who advance to leadership positions may also share their personal work experiences and insights with current and future leaders and become mentors for other people who may want to advance to leadership positions.

Nature of the Study

The purpose of the qualitative case study was to explore and identify the patterns and types of obstacles women in the IT field experience in advancing to leadership positions. The nature of the qualitative study was to explore and gain a richer and more detailed understanding (Creswell, 2002) of the factors that influence women's advancement in the IT field, the characteristics of the mentor-mentee relationships, and how women IT leaders perceive the nature of mentoring programs and services that affect the advancement of female organizational leaders in the IT field.

In contrast to a quantitative methodology, where data are collected "with a set instrument to measure distinct variables" (Creswell, 2002, p. 55), a qualitative methodology requires the collection of data through interviews, observations, reviews of documents, and audio-visual materials (Creswell, 2002). A qualitative method was chosen over other research methods because the study explored patterns and themes regarding the barriers to advancement, lack of mentoring, and shortage of role models of women in the IT field. Comprehensive interviews and observations were conducted and recorded to collect data about female leaders' experiences in advancing to leadership positions.

In qualitative case studies, researchers review a series of events over a period of time and pay close attention to details to identify certain themes (Neuman, 2003) that will help to develop a detailed understanding of a phenomenon. By using several data collection methods and analyzing the resultant data, the qualitative case study revealed the nature of the phenomenon of women's advancement to leadership positions in the IT field. Salkind (2003) posited case studies are used in a distinctive way to capture information relating to the way humans behave based on a number of reasons:

(a) Case studies focus on only one individual or one thing… which allows for very close examination and scrutiny and the collection of a great deal of detailed data . . . ; (b) Case studies encourage the use of several different techniques to get the necessary information ranging from personal observation, to interviews of others who might know the focus of the case study . . . ; (c) There is simply no way to get a richer account of what is occurring than through a case study . . . ; and (d) While case studies do not necessarily result in hypotheses being tested, they suggest directions for further study. (p. 213)

The case study design was used to explore and identify the patterns and types of obstacles, as well as to explore the mentor-mentee relationship of two groups of women, one in leadership (10 cases) and the other in nonleadership (10 cases) positions, in the IT field in the eastern United States. A case study design was chosen because it is the most appropriate design to accomplish the goals of the qualitative case study compared with other qualitative designs. A qualitative case study supported the accomplishment of the study goals by employing multiple data collection methods, such as conducting in-depth interviews and observations to gather information used to explore patterns and types of

obstacles women face in advancing to leadership positions. Although there are other

qualitative designs, the qualitative case study was well suited to accomplishing the study

goals of exploring and gaining an in-depth understanding of the phenomenon of women's

difficulties in advancing to leadership positions and the mentor-mentee relationship of

women.

There are several types of qualitative studies. Ethnographic studies focus on a

particular group for an extended period of time to understand "another way of life from

the native point of view, . . . moving from what is heard or observed to what is actually

meant" (Neuman, 2003, pp. 366-367). In a grounded theory study, a theory is developed

by comparing data between diverse groups while collecting data (Neuman). In a

phenomenological study, the lived experiences of the participants are examined through

the comprehensive account given by the participants (Creswell, 1994).

A qualitative case study is the preferred method when exploring current events,

despite the fact that the related actions of the participants cannot be controlled (Yin,

2003b). Yin (2003b) suggested in a qualitative case study the researcher interviews and

directly observes the events being performed by the participants. This qualitative case

study used *how* questions (Yin, 2003b) to explore and identify the patterns and types of

obstacles women encounter in advancing to leadership positions and the nature of the

mentor-mentee relationship on the advancement of women to leadership positions in the

IT field. Yin (2003b) indicated that *how* questions are likely to be used in case studies to

identify and explain how relationships are traced over a period of time.

The data for the qualitative case study were collected from the in-depth interviews

and observations of 20 cases. Five women in leadership positions in the IT field were

selected from the overall sample of 20 women to also participate in semistructured in-depth interviews and observations. In-depth interviews and observations are commonly used in case studies and were used to collect, analyze, and interpret the observations of the participants (Yin, 2003b). Yin (2003b) suggested the most important aspect of a research design is to ensure the evidence has a relationship to the research questions.

Yin (2003b) posited for a case study, five parts of a research design are important: (a) the case study questions; (b) the case study propositions, if any; (c) the case study's unit(s) of analysis; (d) the logic linking the data to the propositions; and (e) the criteria for interpreting the findings. Regarding the case study questions, the type of questions plays a part in the type of research method used in the study and should be clarified early in the research process (Yin, 2003b). Yin (2003b) indicated some case studies may have good reasons for not having propositions, such as experiments and surveys that may use the design for an exploratory study to state the purpose and criteria of the study.

The case study units of analysis define the case. The units of analysis for this qualitative case study were the women observed and interviewed. The logic linking the data to the propositions are the patterns and themes identified in the study. Yin (2003b) noted there is no particular technique of setting the criteria for interpreting the findings and posited the difference in patterns may be interpreted by comparing two opposing propositions.

Research Questions

The focus of the qualitative case study was to explore and identify the patterns and types of obstacles women in the IT field experience in advancing to leadership positions. The case study also explored the mentor-mentee relationship of female

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