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Leadership best practices for female executives in the information technology industry

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LEADERSHIP BEST PRACTICES FOR FEMALE EXECUTIVES IN THE

INFORMATION TECHNOLOGY INDUSTRY

A dissertation submitted in partial satisfaction

of the requirements for the degree of

Doctor of Education in Organizational Leadership

by

Danielle Jenkins

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DEDICATION

I would like to dedicate this project to my family and friends; all women, aspiring female leaders, and girls. For my family and friends, thank you for your prayers, love and support during this amazing journey. I hope I continue to inspire and make you proud!

For women: know your worth, have confidence in yourself and abilities, understand that your voice and opinions matter. Always remember that you are a valuable asset to any organization and industry. Live every day with passion and purpose. Never stop advocating for the rights of women. Furthermore, continue to encourage, support, and celebrate other women and their successes. Build a stronger sisterhood!

For aspiring female leaders, continue to equip yourself with the tools necessary to be a successful leader. Remember leadership is not just a title but it is about how you impact and influence others around you. Lastly, when you become a leader, lead by example and with integrity.

For girls, there is no limit to what you can do. Remember you are smart enough to be anything you want to be. Always think positively. Most importantly, never, never, never give up on your dream. If you can imagine it, you can achieve it!

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VITA

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ABSTRACT

Commitment to gender diversity in the workplace is based on the social responsibility of business leaders. Many industries have achieved gender diversity, while others industries still struggle. Specifically, the information technology (IT) industry has struggled to create a culture of inclusion for women.

This study explored the experiences and perceptions of female executives in the IT industry. Specifically, this study focused on identifying the challenges female executives in the IT industry faced and determining the leadership best practices and strategies and measures these female executives implemented to advance to executive-level positions. Additionally, given their experiences, this study sought to record their recommendations for aspiring female executives in the IT industry. Therefore, a qualitative research methodology was aligned to the purpose of examining the meaning assigned to this experience and identify leadership best practices. The qualitative method depended upon semi-structured interviews conducted on a one-on-one basis with the survey participants. In using a one-on-one interview format, an in-depth understanding and insight was gathered regarding the leadership best practices of female executives.

The significant findings of the study indicated that there was similarity in regard to methods female executives in the IT industry employed to advance to executive-level positions in the IT industry. The most significant elements were taking initiative, staying knowledgeable, perseverance, mentorship and sponsorship, career strategy, expanding one's network, and collaboration. With regard to challenges, the most frequently stated were gender biases, stereotypes, and the glass ceiling. Although the female executives

in the IT industry had different measurements of success, they shared the belief that impact and influence, balance, supporting family, recognition, and rewards were important elements for measuring career success.

Chapter 1: Introduction

Background

Female leaders are still the minority in corporate America (Egan, 2015). In the 20th century, women have achieved some equality in the workplace and in management. In the 1970s and 19080s, the advancement of women in leadership began to occur rapidly in corporate America. The gender wage gap narrowed, sex discrimination began to decline greatly, and the number of women advancing in corporate America rose steadily. In 1980, women were not represented in senior-level executive level positions in the Fortune 100 companies; by 2001, only 11% of senior-level management were women. From 1997 to 2009, the percentage of women on boards increased by 94%, and 86% for top executive positions. Most significantly, women CEOs increased six times during 1997 to 2009. However, during the 1990s and 2000, the percentage of women in executive-level positions had stalled and the gender wage gap closed slowly (Warner, 2015). Although women have achieved some advancements in corporate America, when it comes to key executive-level positions, women lag substantially behind men. For example, in corporate America, 2015 data shows that women hold only about 15% of the C-Suite positions (Egan, 2015). In addition, 2015 data indicates women represent only 4.6% of CEOs at Fortune 500 companies, and only 19% of Fortune 500 board seats (Warner, 2015). The conversation on the underrepresentation of women in executive-level roles is still active after 30 years of research on gender and leadership. Hence, real change must occur in the workplace to close the leadership gender gap. Therefore, it is critical that leaders

develop effective strategies to close the leadership gender gap so that the next generation does not face the same issue.

Some research suggests that education is not the problem when it comes to women advancing to executive-level positions. Research conducted by the National Center for Education Statistics (NCES, as cited in Moran, 2015), indicated that since the last part of the 20th century men have generally earned more degrees than women. Data showed that between 2011 and 2015 the number of women enrolled in MBA programs climbed from 32% to 36%, and women represented 40% of students in top business schools (Moran, 2015). Furthermore, the number of women who earn MBAs is on the rise (Warner, 2014, 2015). Data in 2015 showed that women represent a little over half of the U.S. population and earn 38% of the MBA degrees, including business administration (Warner, 2015). However, even with advanced degrees, women still experience obstacles and challenges advancing to executive-level positions. Although women have advanced degrees and are qualified to lead organizations, they are still the minority in executive-level positions (Stellings, 2014). Highly qualified women have difficulties advancing to executive-level positions because pay and promotion discrimination continues to exist in the labor market. For example, one study found evidence even after controlling for years of experience that it is more likely for women to start a job after earning an MBA at a lower organizational level than men. There was also evidence that men had higher starting salaries than women and men had more rapid salary growth than women after completing their MBA and entering the workforce. Furthermore, men were more likely to advance to executive-level positions than women after earning their MBA (Pfeffer, 2010). Additional research indicates that highly

qualified women advance more slowly than men, in terms of both career progression and pay (Catalyst, 2016). Furthermore, women tend to work in jobs that pay less, and earn less than equally qualified men, and are underrepresented in executive-level positions, including board and CEO positions (Pfeffer, 2010).

Additionally, there continues to be problems with the underrepresentation of female leaders in executive-level positions in male-dominated industries, such as technology. Research studies about progression of women leaders indicated that there continues to be inadequate representation of women leaders in the science, engineering, and technology industries (Birch, 2013; Gutierrez, 2015; Maddox, 2014; Ritzdorf, 2015). Industries and occupations that are dominated by men hire less women and are more susceptible to gender discrimination that hinders the advancement of women. Additional research from Catalyst suggests that executive-level management teams that are predominately male create a culture for leadership standards that contribute to stereotypes that impact the career advancement opportunities for women (Warren, 2009). The latest figures on women in science, technology, engineering, and mathematics (STEM) fields revealed that women have achieved broad parity in many STEM fields, but not in technology fields (Warner, 2015). Women have also demonstrated advancement in academia. A 2016 report by the National Science Foundation (NSF) found that in 2013, 45% of women in the United States were enrolled in science and engineering graduate schools. Women represented the majority of graduate students in natural and social sciences, and they represented approximately half of graduate students in formal and fundamental sciences. Research shows in the

last decade in the U.S there was a significant amount of women receiving computer science degrees.

Data from the National Science Foundation (NSF, 2015) showed that from 1993-2012, the number of women in computer sciences had increased at all degree levels. During this time period, women were awarded 18% Bachelor's degrees, 28% Master's degrees, and 22% Doctorate degrees in computer science (Catalyst, 2015a). During 2000 to 2013, the enrollment for women increased in most broad science and engineering fields except for computer sciences and mathematics. In 2000, there was an increase in women enrolled in computer science programs, but increased considerably from 2014-2015 (NSF, 2016).

There was also a decline related to women in technology in management. Data shows that the percentage of women working as computer and information systems managers was 32.3% in 2005, 29.9% in 2010, and 28.6% in 2013 (Catalyst, 2015a). Data from the National Center for Women and Information Technology (as cited in Cody, 2016) showed, 56% of women in technology leave their jobs after working in the industry for 10 to 20 years. In addition, the Center for Talent for Innovation (as cited in Cody, 2016), found that 32% of U.S. women in STEM careers indicated that they plan on leaving the industry within a year (Cody, 2016). However, one trend is that the number of women interested in advancing in the IT industry has increased (Catalyst, 2015a). A massive shift is happening for women in the technology industry. For example, there is an increase of women leaders in the IT industry (King, 2015). This shift in the technology industry will open the door for aspiring female-executives in the IT industry.

In spite of the lack of women on corporate boards and among corporate executives and despite the challenges and barriers women encounter in the IT industry, some women still manage to make it up the corporate ladder and become successful business leaders. The women that manage to make it to the top have shown that having women in executive-level positions in the IT industry produces financial success. Research conducted by the Anita Borg Institute (2014) indicated that Fortune 500 companies who have at least three women directors have an operating profit margin of at least 42%. A 2014 report by Credit Suisse (Enskog, 2014) found that businesses with more women on the board of directors had greater returns on equity, better stock performance, and higher payouts of dividends. Research conducted by the National Center for Women and Information Technology (Ashcraft & Blithe, 2010) on gender diversity in technology showed that in successful tech start-ups, there were double the number of women in senior management positions than in unsuccessful tech start-ups. According to the World Bank (2014), when women are excluded from top management positions, managers are less skilled, which results in a decrease in innovation and the value of technology.

Despite the fact that female executives in the IT industry produce successful results for a company's bottom-line, women's representation in executive-level positions in the IT industry remains low. A 2015 report by the Silicon Valley Bank found that 45% of IT companies had no women on their boards or in senior executive-level positions. Change can only occur in the IT industry if more women are in positions where they are a part of the conversation and decision-making to help close the leadership gender gap. The number of women on boards correlates with the number of women in executive-

level positions. Women leaders advocate for the women under them, producing a strong talent pipeline (Catalyst, 2013). Research by Catalyst (2013) shows that greater number of women on boards is linked to a higher number of female leaders in businesses; a 10% increase in women on boards is linked to a 21% increase in female leaders in businesses.

There are several benefits of having more women in executive-level positions in the IT industry. First, such pioneers will become the change agents for closing the leadership gender gap in the industry. Women in executive-level positions have the ability to identify needed change, create a vision and execute the change, and inspire other members of the company to follow. A research study conducted by Deavaux and Devillard (2008) indicated that women can be effective change agents in challenging male-dominated environments and help change the culture within an organization.

Khanna (2013) indicated that more women leaders are needed in the IT industry to participate in decision-making, not only to influence pay and promotion for women in the industry, but also to help move the IT industry forward. Female executives in IT have the opportunity to contribute to the progression of the industry by developing new products and services, advancing the industry for future generations, and finding ways to improve the industry. Since women represent half of the customers of technology services and products, more women leaders would be strategically beneficial for future management for IT companies. Research conducted by Deloitte (as cited in Khanna, 2013) found that women's decisions influence 85% of families spending; which make women the largest single global economic force largely because they represent $4.3 trillion of total U.S. consumer spending. In addition, senior executives in technology—

such as Yahoo's CEO, Marissa Mayer and Facebook's COO, Sheryl Sandberg—have demonstrated that women are capable of being the driving force for ideas and innovation in IT (Khanna, 2013). Women in executive-level positions in the IT industry are good for business and good for a company's bottom line. Studies show that diverse points of view, perspectives, and approaches to problem solving results in an increase in profits and customer retention (Cheng, 2015).

Thirdly, more women are needed in executive-level position in the IT industry so they can become mentors and sponsors for future leaders in IT. The next generation of female leaders will know that it is possible to advance in the IT industry when they see other women advancing in the industry. Research conducted by Corporate Women Directors International (as cited in Women 2.0, 2012) found that women are more attracted to women-led businesses, oppose to business led by men. Businesses run by women have a greater representation of women management than the average representation of women leaders in male-led businesses. In addition, women are attracted to women-led companies because of opportunities for mentoring (Women 2.0, 2012). Mentoring not only helps women network with other female executives but also helps them build the confidence they need to advance in their careers (Slane, 2014).

Lastly, additional research suggests that women are needed in executive-level positions to sponsor more women in the IT industry. Women frequently lack access to sponsors, and reinforcing this process can reduce the gender gap through the benefits gained by sponsorship, including more visibility of women in leadership and an expanded network (Catalyst, 2015c). A research study conducted by Catalyst (2015b) found that more women would advance to executive-level positions in the IT industry if

management identified and sponsored high-potential women for advancement within their companies.

One of the main reasons for the need for gender diversity in executive-level roles in the IT industry is that mid-career women aren't getting promoted into management positions. Many women in the IT industry are overlooked, and still others leave the industry before they even make it onto the leadership track. Furthermore, IT companies need to create an environment where both men and women can develop professionally to advance as leaders. IT companies can create a culture where women can thrive by implementing initiatives to help women develop into management positions, such as formalized coaching and mentoring programs (Cody, 2016). Like most male-dominated industries, the IT industry's culture rewards aggressive behavior, which is often associated with men. This type of behavior is usually interpreted as a display of confidence and a sign of competence, which creates a perception among leaders in the industry that men are better leaders than women (Ingersoll, 2016). If tech companies want to increase gender diversity, they need to change their cultures from the top down, starting with the industry's leading companies (Zeiden, 2016). More importantly, to change the tech culture, everyone needs to change, especially men and leaders (Marcus, 2015).

This study provides women with a roadmap to help them navigate successfully to executive-level positions in the IT industry. This roadmap will help women overcome the barriers and obstacles that prevent them from ascending up the corporate ladder, especially in a male-dominated industry. In addition, this study will provide leadership best practices and strategies for female executives and aspiring female executive,

helping them to advance in the IT industry. Furthermore, this study offers recommendations for IT companies to help close the gender gap in executive-level positions.

Statement of the Problem

The problem is that women are marginalized in executive-level positions in the IT industry. A study conducted by McKinsey & Company and nonprofit LeanIn.Org (2015) found that fewer women than men get promoted to executive-level positions. According to the study, women are mostly promoted through *staff roles*, and fewer executive-level positions that directly affect the company's finances or core operations. In addition, the research found that the factors that influence the number of female executives in IT include implicit gender biases and the culture within the industry (Gellman & Wells, 2016). There are several suggested solutions to help increase gender diversity in the IT industry.

The first suggestion is to improve retention within IT companies. Retention issues stem from what are commonly known as *leaky pipelines*, which refer to factors like gender discrimination that make women leave the IT industry. According to Nobel prize winner Carol Greider (as cited in McCay, 2014), the problem is the pipeline is leaky. The main challenge is that women experience great difficulties at every stage of their career. For example, women experience great difficulty in the way they are appointed to boards and receive promotions, and other indicators of seniority. Furthermore, the pipeline problem requires more than just a practical fix because the root of the problem is one-dimensional; it is also the culture within the industry. A research study conducted on women in technology indicated that one way to advance the amount of women in

management in the IT industry was to fix the pipeline and enable them to attain executive-level positions (Catalyst, 2015b). Therefore, to address the leadership gender gap issue, IT companies must do more to retain women by creating an environment that supports women's advancement and development. Research from both Stanford University and the National Center for Women and Information Technology (as cited in Joseph, 2016) emphasizes the significance of retaining women in the IT industry at the mid-career level because of greater attrition at this stage in women's careers. In addition, these reports emphasize the significance of providing clear opportunities for women's leadership development and a clear career path for women's advancement into leadership positions (Joseph, 2016).

The second suggestion is to create a diverse and inclusive culture within IT companies. Research shows that 52% of women ultimately leave the IT industry because of the working climate. For example, women have stated that their ideas were undervalued or ignored within their organization. Evidence of the cultural problems that affect women in the IT industry can also be found in unconscious expressions of bias such as microaggressions. In addition, research showed that women who have persisted in their careers in IT stated they stayed in the industry because of perceived organizational support and support from their coworkers and managers (Joseph, 2016). Since the IT industry is dominated by White men, the need for diversity and inclusion is especially important. A 2016 report released by the U.S. Equal Employment Opportunity Commission (U.S. EEOC, 2016) on diversity in the tech industry, revealed that the majority of people employed in *high tech sector* positions are white men. In the tech sector, which the report describes as industries that hire a majority of employees in

technology, 68.5% of employees that work in the high-tech sector are White, in contrast

to 63.5% across the rest of the private sector. Most significantly, 83% of tech executives

are white and 80% of all tech executives are men. A research study conducted on

women in technology indicated that another way for women to advance to management

in the IT industry is to tackle the culture and change the unwelcoming environment

(Catalyst, 2015b). The industry needs to take the necessary steps to create a culture in

the workplace where more women can thrive at all levels of the organization. The

macho tech culture, isolation, work-life issues, and lack of sponsors are some reasons

why most mid-career women leave the IT industry. The industry should create a space

and culture where everyone can succeed and thrive.

Purpose Statement

Although the path to executive leadership levels has proven problematic--with

women being overlooked for promotions and experiencing isolation, unclear career

paths, and the need for more mentors and sponsors--some women have successfully

reached executive-level positions in their IT organizations (Hewlett et al., 2008). For

example, Facebook COO Sheryl Sandberg has been named the most powerful woman

in the tech industry, with a personal net worth of $1.4 billion, Sandberg is powerful not

only as a billionaire and senior executive at the world's fifth most valuable company, but

also as an advocate for female empowerment in the workplace and shared

responsibilities at home (Howard, 2016). Furthermore, many successful female

executives in the IT industry like Meg Whitman (CEO of Hewlett Packard), Marissa

Mayer (CEO of Yahoo!), Susan Wojcicki (CEO of YouTube), Virginia "Ginni" Rometty

(CEO of IBM), Safra Catz (CEO of Oracle), Ursula Burns (CEO of Xerox), Lisa Su (CEO

of AMD), Sheryl Sandberg (COO of Facebook), Angela Ahrendts (Senior VP of Apple), and Ruth Porat (CFO of Google; Vinton, 2015) continue to be examples of women that are successful in a tech culture that has grown a reputation for being hostile to and biased against women (Howard, 2016). This ascent is not accidental. The facts of the matter is that the support from other women help women reach the top. Women need other women for guidance, advice, and mentorship through their careers to help overcome career challenges, and drive them forward toward achieving their ultimate potential (Nasri, 2014). Therefore, the best practices and strategies practiced by female executives can help aspiring women in their own journeys.

Accordingly, the purpose of this study is to determine the leadership best practices and strategies women executives use in the IT industry, and to identify the challenges that female executives have faced in the IT industry. The goal of this study is to provide a blueprint for women who aspire to reach executive-level positions in the IT industry. In addition, this study intends to provide an overview of the success and advancement of female executives in order to provide a model for organizational strategies to promote the advancement of women in the IT industry.

Research Questions

To address the purposes of this study as stated previously, the following research questions were explored:

- RQ1 - What leadership best practices and strategies do female executives use in the information technology industry?

- RQ2 - What challenges do female executives face in the information technology industry?

- RQ3 - How do female executives measure their success in the information technology industry?
- RQ4 - What recommendations would female executives make to aspiring female executives in the information technology industry?

Significance of the Study

In 2009, President Obama set a goal for the U.S. to become the leading country in the science and technology fields. The key to achieving this goal is engaging and supporting women in technology fields. Recommended methods to engage and support women in IT include providing a better working environment and mentorship. Addressing the problems of the lack of women leaders in the IT industry will involve organizations implementing creative and innovative strategies that support women in all stages of their careers. Mentorship is vital to increasing the female presence in, and keeping women engaged in, scientific and technical careers. Mentoring helps to address the preconceived notions that may discourage many women from participating in the IT industry (White House Office of Science and Technology Policy, 2016). A blueprint for leadership best practices and strategies will create a better working environment and foster mentorship for women in the IT industry.

The results of this study contribute to efforts aimed at the increase of women engaged in the IT field, which is critical to the U.S.'s ability to prepare and educate the next generation of leaders. Encouraging more women in IT and giving emphasis to powerful mentors and role models creates global suitability. Increasing the number of women in scientific and technical fields is not only a national imperative, it's a global one. As scientific and technical skills become extremely important in a global economy,

the potential for progress in IT is enormous (White House Office of Science and Technology Policy, 2016). Increasing the number of women in the tech industry is not just about creating a more diverse workforce, but about engaging a demographic with the potential to make a significant positive impact on the nation's economy and society (Zeiden, 2016).

The practical significance of this study is to develop an approach built on leadership best practices for female executives in the IT industry that aspiring female executives can use to achieve executive-level positions in the IT industry. This approach is based on an understanding of the challenges faced by female executives in the IT industry. Furthermore, this study strove to learn how female executives achieved executive-level positions in IT, and to understand what it is like to be a leader in a male-dominated industry.

This study has several benefits.

1. This body of knowledge addresses the ongoing leadership gender gap in executive-level management positions in the IT industry and offers recommendations to the leadership of IT companies that can serve as a primer for changing the culture in a male-dominated industry.

2. This study will also add to existing research regarding what IT companies can do to promote females into executive positions.

3. The results of this study can be used by human resources professionals in IT to develop training and coaching materials for aspiring female leaders.

4. The results of this study can be used by colleges and universities to develop curriculum for business or leadership programs.

5. The results of this study can be used for leadership development workshops, seminars, and conferences for women in the IT industry.

6. The results of this study can also be used by consultants for executive coaching.

This study highlights opportunities for future research, especially regarding gender and leadership. Future research can help develop new strategies to close the leadership gender gap in executive-level positions in the IT industry. Furthermore, this study complements the available research on gender and leadership in the IT industry. Recent research shows that women continue to be marginalized in the IT industry. However, there is a small percentage of women that have already achieved high level of success in the IT industry. Therefore, more research is necessary to identify the strategies used by these women to achieve their high level of success, which will help other women achieve success in the IT industry (Duguid & Thomas-Hunt, 2015). There is a large body of research available on the need for gender equality in the area of science and technology, and the need for gender equality in leadership areas. However, there is limited research on women leaders in STEM fields (McCullough, 2011). Gender and leadership in the IT industry is especially important as IT companies try to attract women into the industry and develop the next generation of leaders. As a result of the present skill gap, there are tremendous opportunities for women in the IT industries. Nonetheless, attracting and recruiting skilled women will require IT companies to create a culture that supports the advancement of women in the IT industry (Duguid & Thomas-Hunt, 2015). With IT being a major facilitator of the global marketplace, it is important that IT companies make closing the leadership gender gap a priority. A 2015

report by the Computing Technology Industry Association indicated that the U.S. economy is heavily dependent on the tech industry (CompTIA, 2015). Further research by the Computing Technology Industry Association (2016b) on the technology industry found:

- In 2015, the tech industry employed 6.7 million U.S. workers

- There were 198,200 new jobs added in U.S, between 2014 & 2015

- In 2014, 5.7% of workers were employed in tech firms

- The average salary in the tech industry is $105,400, which is 104% more than any other sector in the U.S.

- In 2015, there were 473,460 tech establishments

- In 2015, there will be 938,500 new tech jobs

- The tech economy contributes 7.1% to the U.S. GDP

These findings show the importance of closing the gender gap to help solve the skill shortage and prepare the next generation of leaders in the IT industry. Companies that fail to address the leadership gender gap risks lagging behind its competitors in recruiting and retaining highly skilled candidates to serve as future leaders (Catalyst, 2016).

Limitations and Assumptions

This study has the following limitations:

1. As theories will be derived by evaluating data gathered from a small subset of female executives in the IT industry, further evaluation and study of additional female executives in the technology industry is recommended.

2. Although the identities of the female executives who participate in the study will remain confidential, including the identity of their employer, they still might

not be willing to disclose their experiences fully for fear of their identities becoming known.

3. Even though the interview questions were validated by an expert panel, and even though the questions posed are open ended, in remaining consistent with the interview questionnaire, the amount of information collected was limited.

4. When subjects become involved in a research study, particularly after signing an informed consent form, their natural behavior changes, and that could impact the results.

5. The researcher's biases and prejudices may influence results. Chapter 3 will discuss the steps taken to minimize the influence of biases and prejudices.

This study was designed with the following assumptions:

1. The purpose of this study was to define the leadership best practices and strategies for female executives in the IT industry. In addition, the purpose of this study is to identify the challenges female executives encounter in the IT industry. This statement assumes that there are best practices and strategies that exist for female executives in the IT industry.

2. The group of interviewees was made up of female executives from different companies in the IT industry. The assumption is that female executives in different companies in the IT industry will have common leadership best practices and strategies.

3. It is assumed that the participants have responded honestly to the interview questions, and provide an accurate depiction of their experiences and perceptions as female executives in the IT industry.

4. It is assumed that qualitative research offers insights into the problem by gaining an understanding of participants' experiences, opinions, and motivations (Merriam, 1998).

Definition of Terms

The purpose of offering definitions of terms is to offer clarity on how selected terminology is used in this study. The following terms are defined for the purposes of this study.

- Best practices: Strategies used to foster an environment instrumental in creating change with long lasting effects in an organization. These strategies can be used to show results consistently and can be used as a benchmark for behavior and performance (Cao & Xue, 2013). This study will provide leadership best practices for female executives in the IT industry, offering a roadmap to help women successfully ascend to executive-level positions.

- Corporate ladder: A hierarchical order used to describe employment advancement within a company. Certain prejudices and biases exist for females that prevent them from advancing up the corporate ladder in a similar manner to their male counterparts (Northouse, 2007). This study examined the challenges women face while advancing in the IT industry. In addition, this study focused on providing best practices and strategies that women can utilize to climb the corporate ladder in the IT industry.

- Diversity: A range of ideas, perspectives, and talents that influence success in an organization (Talent Intelligence, 2015). This study examined the need for gender diversity in leadership within the IT industry. In addition, this study examined the value of gender diversity in leadership within the IT industry.

- Executive-level management: The top of an organization's corporate structure (Drucker, 1988). This tier of executive leaders usually includes the CEO and direct reports (Charan, Drotter, & Noel, 2001). Within the next few levels of an organization structure are second-in-command executives and executives (Helfat, Harris, & Wolfson, 2006). Women are still underrepresented in the executive-level management in the IT industry. This study focused on leadership best practices for female executives who hold senior level positions (Director or above) within their organization.

- Gender bias: The unequal treatment of one gender as compared to the other. This unfair treatment is based on the expectations of gender roles and the perception of women in leadership within organizations (Eagly, Johannesen-Schmidt, & van Engen, 2003). This study examined gender bias as an obstacle that prevents women from advancing in the IT industry.

- Glass ceiling: An invisible system based on obstacles that prevent women from attaining leadership positions in an organization. These obstacles include gender stereotyping, exclusion from mentoring and important work assignments, and dead-end positions typically reserved for women. All the results reinforce the belief that the glass ceiling exist, preventing women from reaching top-level positions (Federal Glass Ceiling Commission, 1995). This

study examined the glass ceiling as an unseen obstacle hindering women from ascending into executive-level positions in the IT industry.

- Inclusion: Inclusion when linked to diversity strategy seeks to influence all differences among the individuals of a given group to benefit all members within that organization (Jayne & Dipboye, 2004). Inclusion involves creating a culture and environment where everyone feels included in the organization and where their thoughts and ideas are valued (Talent Intelligence, 2015). This study examined the culture of the IT industry and whether or not the industry is doing enough to include women in all levels of the organization.

- Information Technology (IT) Industry: An industry concerned with collecting, processing, and presenting information. The IT industry is an important one because it provides an opportunity to apply information to change society and the economy for the next generation (Cetron & Davies, 2001). This study focused on how female executives in IT can prepare the next generation of female leaders and contribute to the industry's progress.

- Leadership style: A leader's ability to influence his/her followers' thoughts, attitudes, and behaviors to achieve a desired result (Jogulu & Wood, 2006). The transactional leadership style is associated more with men, as opposed to the transformational leadership style, which is typically more associated with women. This study explored the differences among men and women and leadership effectiveness in achieving the goals of the organization.

- Leadership gender gap: The relative difference in the number of leadership positions among women and men within an industry. There is still a

substantial gap between men and women when it comes to representation in leadership positions in IT. This study examined how stereotypes, prejudice, and discrimination contribute to women's underrepresentation in executive-level leadership roles by influencing the perception of women (Hoyt, 2010).

- Male-dominated industry: An industry dominated by men that employs fewer women and is particularly prone to gender biases and stereotypes hindering the advancement of women (Catalyst, 2015b). The science, technology, engineering, and mathematics (STEM) fields are still dominated by men. Gendered occupational segregation is an important issue because it is a main factor that contributes to the leadership gender gap in the IT industry (Prescott & Bogg, 2011).

- Stereotyping: Social beliefs and perceptions that the abilities and personality traits necessary to perform tasks are distinctive to a group of people. These beliefs usually include the notion that men are focused on agentic goals and women are focused on communal goals. The stereotype of women in leadership is that women are less likely to possess positions of power and high status (Eagly & Steffen, 1984). This study examined stereotyping as an obstacle that prevents women from advancing in the IT industry.

- Transactional leadership: A style of leadership where a leader encourages followers to achieve results through both rewards and punishment (Cuadrado, García-Ael, & Molero, 2015). Transactional leadership includes the process of agreed upon exchanges or transactions between the leader and followers (Jogulu & Wood, 2006). This leadership style is mostly associated with men.

- Transformational leadership: A leadership style where a leader becomes a change agent by determining what change is needed, and then developing a plan to execute change while at the same time inspiring his/her followers (Cuadrado et al., 2015). Transformational leadership is a method that pertains to ethical and moral goals (Bass, 1990b). This style of leadership is mostly associated with women.

Summary

Identifying leadership best practices for female executives in the IT industry starts with the realization that some females have been successful in breaking through the glass ceiling in the IT industry. Although some women have obtained executive-level positions, many capable women are still being overlooked for executive-level positions in the IT industry. Recent research indicates that qualified women are leaving the tech industry in droves (Lien, 2015). A *Harvard Business Review* study found that approximately 50% of women employed in technology field will leave the industry due to the biases holding them back are subtle, and harder to challenge. For instance, some women indicated that they left their tech career because they felt stuck, with no way to advance; they were bypassed for promotions because their boss thought a male was more qualified; there projects were frequently taken away or dismissed; they felt they were always asked to prove themselves, they were assigned to less interesting projects; and they were often excluded from conversations and a felt their thoughts and opinions were not valued (Lien, 2014). By studying what strategies have worked for successful female executives, other women will have a model to assist them with their advancement to executive-level positions. Aspiring female executives will have the

advantage of knowing the challenges female executives face in the IT industry, and how female executives measure their success in the IT industry.

In addition, women in executive-level positions are targeted because research indicates that female executives in male-dominated occupations encounter issues that are unique to their gender (Agonito, 1993) and implement best practices that defy the typical belief about women in leadership in male-dominated occupations (Smith & Leduc, 1992). Therefore, it is important to track the experiences and accomplishments of women in IT to gain insight into their career paths and routes to professional success (Igbaria, Parasuraman, & Greenhaus, 1997). This study provided an excellent opportunity to identify influential and best practices, strategies, and valuable insights leading to the creation of models of career advancement applicable to women in IT. Although many women are excelling in executive-level positions, some data still point to gender disparities in the business world. These disparities are said to be more prevalent in male-dominated industries, especially in the IT industry. Research found male-dominated industries employ 25% fewer women, and that gender biases and stereotypes that hinder the advancement of women in male-dominated industries and positions (Warren, 2009). Furthermore, this chapter conveyed the goal of empowering women and providing a blueprint for the next generation of leaders in IT.

The acceptance of women leaders in IT is an essential step to closing the gender gap (Duguid & Thomas-Hunt, 2015). Once IT companies recognize that women contribute significantly to the workforce, the value of investing and supporting them in their career development will be indisputable. The IT industry can profit tremendously from women's aspirations to advance to executive-level positions. In the end, IT

companies will discover that the time spent on closing the gender gap in leadership positions will be a valuable investment.

This chapter has provided an overview of this research study. This chapter defined the purpose of the study, identified both the problem and significance of the research and posed the four research questions. This chapter described the key terms and noted the limitations and assumptions. The next chapter will review the literature, laying a theoretical foundation for the study.

Chapter 2: Literature Review

This chapter provides an overview of the literature concentrating on women in leadership and the information technology industry. The literature review will also background information on leadership theories, gender and leadership, the gender gap in IT industry, and the evolution of the IT industry, and the obstacles that women face while striving for equality in the workplace. The chapter also presents data pertaining to the disparity in treatment of female executives in the IT industry. Finally, the chapter includes a review of research studies that explore women in leadership, examining their success in other male-dominated industries.

Leadership Theories

Leadership is a highly valued source capital in an organization. However, researchers have found it hard to understand and describe the concept of leadership because it is an intricate and complex phenomenon (Winston & Patterson, 2006). Stogdill (1974) asserted that there are as many people who have attempted to define leadership as there are different definitions of leadership. Table 1 shows some common definitions of leadership.

Leadership theories have progressed throughout the centuries by recognizing the complexities of leadership. Prior to the 20th century, research on leadership focused on men (Moran, 1992). Since early scholars and researchers were men, the research was concentrated on male practices and perceptions of leadership. The problem with underrepresentation of women in leadership positions can be attributed, at least in part, to the historical influence of male dominance in leadership (Jogulu & Wood, 2006).

Table 1

Definitions of Leadership

Source	Definition
Stogdill & Shartle, 1948	Leadership is a process that includes interaction and participation in goal oriented group task.
Stogdill, 1950	Leadership is the steps that are taken to accomplish a goal and influence individuals.
Hemphill & Coons, 1957	The behavior of a leader managing task to achieve a goal.
Prentice, 1961	Effective leadership is through successful collaboration to achieve a particular end.
Tannenbaum, Weschler & Massarik, 1961	Leadership is building strong relationships to attain a specific goal.
Stogdill, 1974	Leadership is the process of action and maintaining order in belief and influence.
Zaleznik, 1977	Leadership requires using power to influence other people.
Burns, 1978	Leadership is utilized when a leader fulfills the needs of their followers.
Hollander, 1978	The key element of leadership is influence.
Katz & Kahn, 1978	Leadership involves ensuring the regular practices are adhered to in an organization.
Cribbin, 1981	Leadership allows leaders to make individuals perform tasks well.
Rauch & Behling, 1984	Leadership influences actions.
Donelly, Ivancevich, & Gibson, 1985	Leadership influences tasks through an exchange of information.
Hersey & Blanchard, 1988	Leadership influences activities in a specific environment.
Hosking, 1988	Leaders regularly make effective contributions to social order.
Batten, 1989	Leadership is created by identifying all available resources in an organization.
Bass, 1990b	Leadership is an interaction between followers that usually requires adjustments to be made in a group.
Cohen, 1990	Leadership is creatively influencing individuals to obtain a high level of productivity.
Jacobs & Jaques, 1990	Leadership provides purpose and meaning to achieve a goal.
Yukl & Van Fleet, 1990	Leadership consist of influencing the task objectives and strategies, and maintaining identity and culture.
Conger, 1992	Leaders establish direction for individuals and motivate these individuals to achieve the goals.
Jaques & Clement, 1994	Leadership is the steps that individuals take to work together, and are dedicated to achieve goals.
Kouzes & Posner, 1995	Leadership prepares individuals for the conflict that arises when achieving a mutual goal.
Rost, 1997	Leadership influences change that exhibits shared purpose.
Bolden, 2004	Leadership is multidimensional, which includes influence and motivation.
Hogan & Kaiser, 2005	Leadership sustain a group regardless of conflict.
U.S. Army, 2006	Leaders influences people to make improvements in an organization.
Vroom & Jago, 2007	Leaders motivates people to collaborate to achieve a goal.
Van Vugt, Hogan, & Kaiser, 2008	Leaders influence individuals to contribute and pursue shared goals.
Northouse, 2010	Leadership is where a leader uses power to reach a mutual goal.
Yukl, 2010	Leaders understand what is required to achieve a goal.

The Great Man theory (Hollander & Offermann, 1990) was developed in the 19th century. This theory states that only men possess the characteristics of a great leader and that great leaders are born and not through a skill-set that could be acquired from training and experiences (Clark & Clark, 1990). The limitations of the theory are that it does not consider the numerous circumstances faced by leaders and it does not evaluate the leader's success (Hollander & Offermann, 1990).

This leadership theory was created when women were not as visible in the workplace. Before World War II, the role of women in the workforce was limited and in many ways seen as insignificant (Banaszak, 2012). Furthermore, this theory demonstrates how women were not perceived as leaders. The idea of women leaders was completely foreign in the 19th and 20th century (Banaszak, 2012; Jogulu & Wood, 2006; Moran, 1992). As a result, women currently encounter stereotypes and gender biases in the workplace. For example, some believe that women are not capable of being leaders, and leadership equates to maleness. When women became leaders they were described as possessing male qualities such as being masculine (Hearn & Parkin, 1987; Moran, 1992). Presently, when women become leaders they are described as possessing female qualities such as the ability to inspire and motivate others (Eagly et al., 2003). The majority of the research on leadership in the 20th century focuses on strategies to expand a leader's influence and power (Heilbrunn, 1994; Horner, 1997; Stogdill, 1974). Recent research on leadership suggests the need for a leader to share power in order to achieve desired results (Hoegl & Muethel, 2016; Houghton, Pearce, Manz, Courtright, & Stewart, 2015).

Trait Leadership Theory developed in the 20th century (Jogulu & Wood, 2006; Zacarro, 2007). According to Jogulu and Wood (2006), traits and characteristics for successful leadership are defined in relation to male attributes. The theory investigates mental, physical, and social characteristics to provide a deeper understanding of which ones are common among leaders. In this time period, very few women held management or leadership positions.

During the 1930s and 1940s, researchers proposed that traits did not define effective leadership. This perspective on leadership provided the foundation for behavioral theories (Jogulu & Wood, 2006). Bass's (1985) on trait theory of leadership led to the belief that caring for people is an effective leadership trait. The concept of caring for people is equivalent to the term *empathy*, which is more typically associated with women than with men. Furthermore, effective leadership requires leaders to care about the needs and achievements of their followers.

In response to the trait leadership theory, behavioral theories were developed in 1940s and 1950s. Behavioral theories suggest effective leadership requires training. Doh (2003) found that effective leadership requires leaders to rely on leadership training and inquisitive approaches such as mentoring, coaching, and trial and error experience. In addition, Behavioral theories implied that great leaders can be made, as opposed to suggesting that only men can be leaders. Although Behavior theories were present in the 1940s and 1950s, the theories did not become significant until the 1960s.

In the 1960s, situational theories became popular. Contingency leadership theories are also known as situational theories. Contingency theories focus on situational characteristics of leadership and leadership traits. The model that was

formed from situational leadership was based on Reddin's (as cited in Lee-Kelley, 2002) 3-D management style theory. The basis of situational leadership theories is that leaders must implement distinct types of leadership to handle distinct situations, and to be a great leader involves leaders overcoming challenges of the distinct situation by adjusting their leadership. Situational leadership theory can be seen as an expansion of the trait theory, in the sense that the situation in which a leader use their leadership skills is linked to human traits. These theories have primarily been associated with men in leadership (Fiedler, 1967; Hersey & Blanchard, 1969; Jogulu & Wood, 2006; Kopelman & Thompson, 1976). Research in the 1960s and 1970s indicated that women were not capable of being leaders (Moran, 1992). According to gender stereotypes, women are viewed as emotional as and less competent than men, whereas men are viewed as aggressive and competent (Bass, 1981).

During the 1970s, research on leadership focused on social exchange theories and the management of organizations, in which leadership is viewed as a progression of influence among leaders and their followers. A leadership process typically involves a mutually beneficial relationship in which the participants work toward a common goal. Furthermore, leadership also involves collaboration with others. The process of leadership includes agreed exchange or transaction between individuals (Jogulu & Wood, 2006).

Situational leadership theory suggest that the leader pursues a trusting and open relationship (Jogulu & Wood, 2006). Situational leadership theory was the first theory that introduced feminine characteristics to leadership theory, thus bringing women in leadership to the forefront of research on effective leadership traits. Feminine

characteristics were defined as being soft, intuitive, and emotional, which were perceived to interfere with effective business practices (Moran, 1992). Although research started to acknowledge women in leadership roles, the perception seemed to be that limitations were associated with the differences among women leaders (Fagenson, 1990).

Research by Bass (1985) was based on Burns's (1978) work on transactional and transformational leadership. Burns proposed that the style of transactional leaders was associated more strongly with male traits, such as analytical problem solving and competitiveness, than with female traits. In contrast, transformational leadership was deemed to be more linked to feminine characteristics such as collaboration, teamwork, and using intuition and rationale for problem solving (Klenke, 1993). Bass's examination of transformational leadership provided an opportunity to conduct additional research on leadership styles of men and women (Eagly et al., 2003). Bass proposed that some transformational leaders put their own interests ahead of their followers. Bass characterized this behavior as *pseudo-transformational*, stating that sometimes leaders perpetuate their followers' dependency by creating crises (Bass & Avolio, 1994). Pseudo-transformational leaders abuse their power to advance their own agendas and interests, and improperly use their behaviors and transactional skills to force manipulate and compliance followers (Bass, 1985).

In the early 1990s, the literature's focus shifted to study women leaders. During this time period women began advancing in their careers and attaining leadership positions. Theories on gender difference resulted in a change in the literature on

leadership, as studies identified and assessed women's behavior and competence (Jogulu & Wood, 2006).

Gender and Leadership

Since the 1990s, research on gender and leadership has become prevalent. Prior to the 1970s, academic research disregarded issues related to gender and leadership (Northouse, 2007). The conversation has changed from whether or not women are capable of leading to focusing on the biases women encounter as they ascend to executive-level positions. This trend correlates with the feminist movement, and an increase in college-educated and career-driven women, which stimulated interest in the examination of female leaders.

Several meta-analyses between 1987 and 2000 revealed that there were small differences between women and men leaders (Eagly & Johnson, 1990; Eagly, Karau, & Makhijani, 1995; Eagly, Makhijani & Klonsky, 1992). Contrary to stereotypical beliefs, the findings of research studies indicated that women managed in a more rational manner, and men managed in a more productive manner. The disparity was found only in experimental condition, such as situations where behavior was more controlled by common roles. The most significant difference discovered is that men practice a more autocratic and directive leadership style as compared to women, who practice a leadership style that was more participative and democratic (Eagly & Johnson, 1990; van Engen & Willemsen, 2004).

A meta-analysis study conducted by Eagly et al. (1992) examined both genders' traits and leadership behaviors. Findings suggest that women were undervalued when they practiced a leadership style associated with men (e.g., autocratic or directive).

These findings not only emphasized the prejudices and biases women experience as leaders, but also showed that women's style of leadership appeared to be more suitable for change when practicing a democratic leadership, supporting situational theory, in that women will use a leadership style that results in best outcome (Northouse, 2007).

The comparative success of men and women leaders in addition to the style of leadership has been evaluated in numerous studies (Jacobson & Effertz, 1974; Tsui & Gutek, 1984). The results from the meta-analysis relating to leadership success of women and men determined that women and men were equally effective leaders. However, the findings indicated that women and men were more effective leaders when their style of leadership was similar to traditional gender roles (Eagly et al., 1995). Hence, women were less successful when they were practicing a leadership style typically associated with men.

Women were considered not successful in leadership roles perceived as requiring masculine traits. For example, men were seen as more successful than women in industries dominated by men, such as, the military, but were perceived as more successful than men in traditionally female industries, such as, social services and education positions, and considerably more successful than men in mid-level management, where strong communication skills are valued. Additionally, women were seen as less successful than men when a greater percentage of men evaluated their leadership performance or they managed a greater amount of male subordinates (Northouse, 2010). The overview of the research shows minimal disparity in styles of leadership and success between women and men. The research also suggests that women experience minimal effectiveness in leadership in typical masculine positions,

whereas positions that are typically more feminine provide them with more benefits. Furthermore, women exceeded men in the use of style of leadership that was participatory or democratic, and they are more inclined to practice contingent rewards and transformational leadership, which are linked with present-day ideas of effective leadership. Transformational leaders encourage followers to consider the needs of others by serving as role models for what they expect from followers and subordinates (Bass, 1985). According to Ballou (2001), effective leadership encourages effective work from followers. The team's outcome directly correlates with the clear vision and responsibilities of the team.

Research conducted by Helgesen (1990) expanded on the conclusion that female leaders offer a distinct style of leadership beneficial to organizations. Helgesen's book *The Female Advantage* focused on women's contributions to an organization instead of how they need to change. The author emphasized that the skills women possess are appropriate for the complexities of today's workplace. Specifically, Helgesen referenced building relationships, directing communication, leading from the middle, valuing diversity, and having a balanced life and easily obtaining information from multiple sources as important skills. Most significantly, the author's research shows how 21st century organizations promote women's skills. For example, businesses want to connect with customers and support networks instead of traditional structure, and teamwork and collaboration become important components in achieving business goals. Therefore, the skills women possess can create sustainability in 21st century organizations. The next section will examine transformational leadership to provide a clear understanding of women's leadership styles.

Transformational Leadership

During the early 1980s, approximately 30% of research conducted on leadership focused on charismatic and transformational leadership (Lowe & Gardner, 2000), Bass and Riggio (2006) proposed transformational leadership was popular because it emphasized motivation and follower development. This type of leadership is necessary during a time of uncertainty. In a time of uncertainty, organizations must make adjustments to meet the needs of their operating environment (Shadraconis, 2013). In a time of uncertainty, a leader may discover that their followers lack motivation because of the fear of uncertainty. Therefore, it is critical that leaders can motivate and influence their followers by building trust. According to Northouse (2010), transformational leadership fits the demands of present-day organizations, because leaders can motivate and encourage their followers and build trust in times of uncertainty.

Transformational leadership is an approach that motivates and influences people. Transformational leadership pertains to ethics, emotions, long-term goals, standards, and values (Bass, 1990b). It includes evaluating followers' motivation, recognizing their value, and fulfilling their needs. This leadership style creates an extraordinary form of influence that usually integrates visionary and charismatic, and changes the actions of individuals to meet the leader's expectations. This approach can be used to explain a variety of leadership styles, from influencing entire cultures and organizations to specific achievements to empower individuals on a personal level. Although, transformational leader contribute significantly in leading change, leaders and followers are connected in the change process (Northouse, 2010).

In addition to research by Bass (1985, 1990a; Bass & Avolio, 1994), additional research on transformational leadership indicated that follower development contributed significantly to understanding the concept of this leadership style. Bennis and Nanus (1985) and Kouzes and Posner (1987, 2002) interviewed a number of senior and mid-level leaders using questionnaires. They built their models of leadership based on their analysis of participants' responses. The next section explores transformation leadership and how it relates to gender.

Mandell and Pherwani (2003) characterized transformational leadership as a feminine model of leadership. A feminine model is built around collaboration, cooperation, and joint problem-solving and decision making (Jogulu & Wood, 2006). These are the exact qualities that are required in effective leadership in today's organizations (Northouse, 2010; Shadraconis, 2013).

A meta-analysis on gender and leadership related the transformation leadership and leadership effectiveness to women. Eagly et al. (2003) inferred that characteristics of leadership in which men surpass women relates negatively to leadership effectiveness, whereas the leadership characteristics in which women surpass men, relates positively to effectiveness. These results confirmed that women typically have leadership qualities that are primarily effective in present-day organizations, such as a higher level of morality and the ability to inspire and motivate others. In addition, their figures indicated small but strong variation between men and women leaders, which indicated men's leadership styles are usually less transformational than women.

According to Bass and Avolio (1994), transformational leadership is the process by which a connection is formed that increases the level of morality and motivation and

in both the follower and leader. A transformational leader encourages and motivates the follower to maintain and seek higher levels of performance that is normally not achieved by using transactional leadership (Bass, 1985). Research shows that all elements of the contingent reward element of transactional leadership and transformational leadership are positively related to leadership success (Northouse, 2010).

Transformational leadership was the first leadership theory that provided a moral and ethical aspects of leadership ("Transformational Leadership," 2016). The moral and ethical aspects of transformational leadership are leading by example, encourage learning and growth, inspiring to move to reach new goals, and coaching and empowering to succeed. The moral and ethical aspects of transformational leadership can be seen in Figure 1.
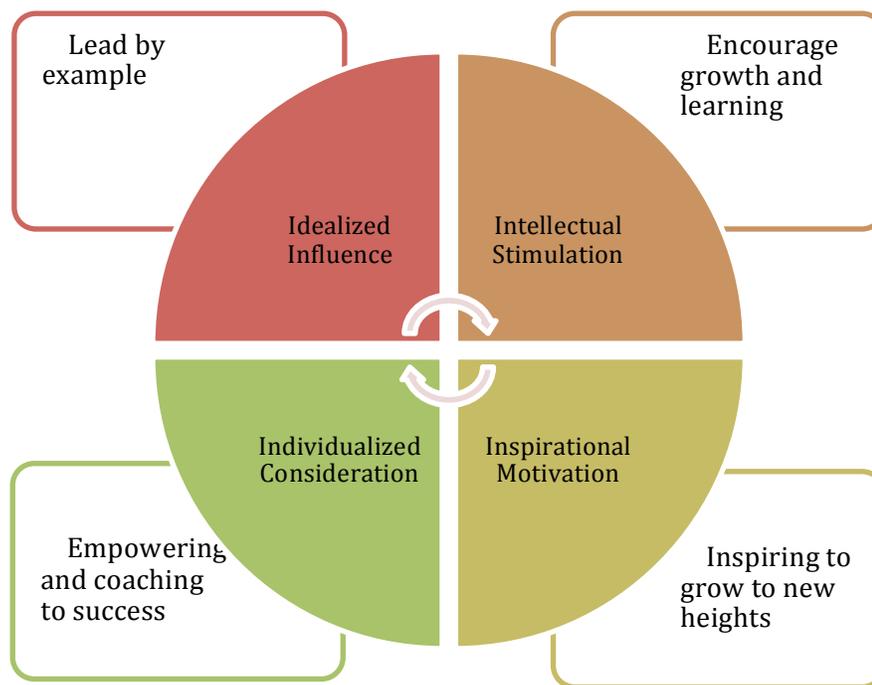
Figure 1. Adapted from *Transformational Leadership: Leading Change through Growth and Empowerment, by Lee Candy,* August, 2016, retrieved from http://www.educational-business-articles.com/transformational-leadership/. Copyright 2016 by Educational Business Articles. Adapted with permission.

Some research emphasizes transformational leadership as a method used for follower empowerment and recommends that it is important for organizations to become more collaborative, adaptable, cooperative, and less structured. The way women are assumed to behave as leaders, based on typical stereotypes can be linked to follower empowerment. Studies show that women perceive themselves as more transformational leaders than men (Kark, 2004). Additional research shows there are significant differences that evaluated men lower than women on all transformational factors (Eagly & Carli, 2003). Research conducted by Yammarino, Dubinsky, Comer, and Jolson (1997) found that women leaders created an organizational culture that supported a positive working culture and building relationships, thus facilitating strong relationships that advanced productivity, effectiveness, satisfaction, and commitment. The research confirmed that contingent rewards and transformational leadership is significantly connected with female leadership and positively connected to follower empowerment. The next two sections will explore women in leadership and more contemporary leadership theories, diversity theories, and strategic leadership.

Leadership and Diversity Theories

Research conducted by Meuser et al. (2016) used leadership and diversity theories and network analysis to investigate leadership theory integration. The impact of globalization on organizations has created new leadership challenges, particularly as workforces have become demographically diverse, expanding across global boundaries. Such challenges include the insufficient number of women leaders in organizations. Despite the large influx of women into the labor workforce, recent statistics indicate that 4.6% of Fortune 500 organizations are managed by female

executive officers, and 16.9% hold executive board seats (Warner, 2014). This disproportion has attracted the attention of leadership scholars who are concerned about factors that impede women's attainment of leadership roles (Heilman & Haynes, 2005), even though women are equally effective leaders as men (Eagly et al., 2003). Similar to strategic leadership research, which pulls from a variety of theoretical paradigms to explain a specific leadership context, the presence (or absence) of women as opposed to men in leadership roles suggests yet another specific leadership context for this stream of research (Meuser et al., 2016).

Present integrated research on diversity and leadership is centered around the processes that affect the attributes of women leaders, as reflected by the extension of trait theory (Meuser et al., 2016). Leadership and diversity theory follows from an examination of gender role theory and role congruity theory (Eagly & Karau, 2002). Given the theoretical similarity between these theories and implicit leadership (Offermann, Kennedy, & Wirtz, 1994).

Transformational leadership and traits are present prominently in women. Women leaders' portrayal of transformational leadership and trait differences and similarities with men are of important interest to gender and leadership researchers. Transactional leadership-member exchange likewise seems to only be slightly different in structure and method from transformational leadership. Transactional leadership exchange proposes that gender diversity researchers have not compared and contrasted different leadership models. The transactional leadership exchange suggest that the omission of comparing and contrasting different leadership models occurs not only with respect to how women employ these forms of leadership differently than men

do, but also in regard to women leaders' distinct effectiveness in using them. The impact of the social-relational context has gained some attention, as revealed by the inclusion of identity process theories, leader-member exchange, leadership and teams, and cross-cultural leadership (Meuser et al., 2016). However, integrative applications of these theories are limited, and there remains an absence of research on social networks and how relational resources may affect women's ascension to positions of power. Research on leadership and diversity are theories such as transactional, charismatic, adaptive, strategic, and public leadership are less central to research on leadership and diversity. The dominant stream of analysis in leadership studies remains focused on exploring *why*, *when*, and *how* women are regarded as leaders (Eagly & Carli, 2007). Emerging leadership approaches (e.g., ethical leadership) evolve into the diversity (gender) and leadership category. Lastly, there is a need for incorporating racial diversity into the diversity theory, which is essential to understanding the disadvantages faced by minority women (Livingston, Rosette, & Washington, 2012).

Strategic Leadership

Research conducted by Meuser et al. (2016) identified strategic leadership as one of the important leadership theories. Strategic leadership refers to a leader's ability to have a vision, anticipate, maintain flexibility, work with others to initiate changes, and think strategically (Ireland & Hitt, 2005). These are skills are the catalyst for an organization's capacity to adapt to rapid environmental changes (Arrfelt, Wisemank, & Hult, 2013). Hence, strategic leadership emphasizes "leadership of" (Boal & Hooijberg, 2001, p. 516) organizations, as opposed to "leadership in" (p. 516) organizations. Research in this area focuses on the top levels of organizational leadership (e.g., CEO,

senior management teams). Supporting Avolio's (2007) projection of integration capabilities, strategic leadership is linked to macro-, meso-, and microlevel theories. This method represents the dominant quantity of approaches as reflected by the superior density and complexity of the network and the main quantity of integrated theories (Meuser et al., 2016). Such network density is not unexpected in light of the complexity of establishing strategic decisions within extremely uncertain organizational environments (Arrfelt et al., 2013).

Research on strategic leadership is comparable to, however profoundly distinct from, positions of less status and less authority in an organization. Indeed, research on strategic leadership has revealed that leadership at the highest levels varies in five fundamental ways. Specifically, senior level leaders:

1. Establish strategy for the organization.

2. Construct organizational structures and policies.

3. Serve a symbolic role, particularly in large organizations where they serve the public.

4. Indirectly affect lower level management through hiring practices and promotions, etc.

5. Participate in more diverse activities (Hiller & Beauchesne, 2014).

An analysis of strategic leadership theory indicates that transformational leadership is a fundamental feature, indicating that this form of leadership is the most frequently studied theory—possibly because of the emergence of transformational leadership as a *public* leadership theory, focusing on executives from the political realm (Burns, 1978). However, transactional, trait, situational, charismatic, and leader-

member exchange theories also exist in strategic leadership (Meuser et al., 2016). This scope suggests that rather than a distinct *executive leadership* theory with its own dimensions and scales, this stream of research relies heavily on other leadership areas and alters those ideologies to the unique features of leadership at the executive level.

Strategic leadership focuses on information processing and decision-making, cognitions, and contextual theories, but excludes teamwork. Hence, research into leadership at the strategic level is centered on interacting more with organizational components, leaders responding, and adapting as shown by the strong connection to team leadership, rather than individual followers. Strategic leadership theory reflects the top leaders' role in important decision-making on behalf of the organization (e.g., corporate strategic planning). Situational leadership and leadership flexibility are secondary theories for strategic leadership, suggesting that researchers are interested in how senior-level leaders change to address situational contingencies and organizational stakeholder expectations. Interpersonal, rather than intrapersonal, practices appear to hold a prominent role for understanding strategic leadership. Researchers appear to be more concerned with how strategic leaders (Meuser et al., 2016):

- Behave, implement influence, and reward and punish;
- Allocate and/or share leadership activities/responsibilities; and
- Consider organizational and environmental challenges.

These leadership phenomena are linked by multilevel processes, as leaders influence, and are influenced by, a changing social-relational environment to create innovation and change within multifaceted organizational systems (Meuser et al., 2016).

Finally, the importance of traits in strategic leadership suggests that researchers still

consider traits required for success at the highest organizational levels (Peterson,

Walumbwa, Byron, & Myrowitz, 2009).

A senior leader's role is to set direction and drive corporate culture. Senior

leaders set direction and drive corporate culture by building relationships with their team

members. Relationships among leadership in teams, participative leadership, and

strategic leadership show how strategic leaders can share and delegate their influence

within their organization (Meuser et al., 2016; Peterson et al., 2009).

Role Congruity Theory

Western culture holds certain expectations about men's and women's attire,

relationships with others, and expected behaviors. Women are viewed in a positive

manner when they exhibit the stereotypical beliefs of the femininity. The same can also

be said for men. While it is clear that gender-based stereotypical expectations have

changed over the years, from the Victorian time period to the current time-period, there

continues to be conventional characteristics that women are expected to embody (Eagly

et al., 1995; Eagly & Diekman, 2005; Eagly & Karau, 2002).

Role congruity theory, a term created by Eagly and Karau (2002), alludes to the

prejudice that occurs when an individual conveys stereotypes or biases about a person

that is contradictory with the actions thought to be essential to be effective in a particular

position (Eagly et al., 1995; Eagly & Karau, 2002). This contradictory behavior lowers

the assessment of the individual as a possible or real occupant of the position. Hence,

role congruity theory suggests that individuals will be assessed in a positive matter

when their behavior is acknowledged as lining up with the perceived set of behaviors

(Eagly & Diekman, 2005). Bias are formed about female leaders because differences are present between conventional leadership and those linked with the traits connected with gender stereotype.

One of the reasons that prejudice prevents women from achieving executive-level positions is the perception of female leaders. Research shows that women face challenges obtaining executive-level positions in an organization and in sustaining these positions through effectiveness and accomplishments (Ritter & Yoder, 2004). Further research suggest that biases towards women in executive-level positions occurs often in circumstances where greater irregularities between leadership roles and gender roles exist (Eagly & Diekman, 2005; Eagly & Karau, 2002). Eagly (1987) proposed that women are commonly perceived in a more negative manner than men. Such gender biases permit for a greater projection of gender differences between men and women in regards of rules or behaviors accepted by society. Additional research showed that women were less visible than men leaders (Eagly & Karau, 1991). Although women are more likely to progress in social leadership roles, leadership roles requiring expertise related to an individual's motivation and purpose are oftentimes associated with men.

Leadership and power role beliefs fall under the theory that traditional social roles for women relate to characteristics such as caring and nurturing (e.g., homemaker, teacher, nurse). These characteristics are normally not associated with executive-level positions (Diekman & Goodfriend, 2006). In contrast, authoritative and power positions expected to be held by men relate to characteristics such as aggression and competitiveness (senior management).

Effective leadership has been studied for centuries. However, a more recent area of study is comparing men leaders and women leaders in relation to effectiveness and style. The practices used by women tend to be more collaborative, less structured, and focused on increasing others' self-confidence and empowerment (Eagly et al., 2003). According to social role theory, leaders operate under the restrictions of their gender roles, and employs roles described by their particular position in a hierarchical structure To further examine the experiences of women, this study takes an in depth look at the barriers women face in the workplace.

Gender and Gender Bias

Several meta-analysis research studies suggest that there are multiple differences between women and men in the workplace, such as leadership style, effectiveness, culture, relationships, and language. Heim (2005) has shown that from birth, women and men are brought up differently, and behaviors accepted in society are taken directly into the workplace once children become adults. For example, early on, girls are encouraged to communicate, harmonize with their peers, and have friendly relationships, communicate, In contrast, boys are encouraged to compete with others through their choices of sports, games, and toys. This difference in trends supports why women are more comfortable in organizations that are flat, where communication can flow easily, and men feel more comfortable in hierarchical structures. Gender differences can also be seen in the way women and men lead meetings. Men spend a considerable amount of time before the meeting building relationships to push their agenda on meeting attendees. Women show up to the meeting not knowing that the

meeting has already occurred, and are less prepared to discuss ideas with the group, which can become problematic (Evan, 2000; Heim, 2003).

Gender bias can be caused by self-promotion. Gender stereotypes can be reduced in the workplace through self-promotion due to the fact that it advances the notion of competence (Rudman, 1998; Sandow, 1979). However, women who act aggressively are perceived in a negative way compared to men who exhibit similar behavior. These opposing expectations explain why women are given fewer opportunities in leadership. The double standard is prevalent in the workplace. Women are often placed in a position where it is hard to get ahead earlier in their career, while men are believed to have the right to be leaders, many women are merely accepted as outsiders and must constantly prove they are competent and possess the skill-set to be leaders (Sandow, 1979; Swiss, 1996; White, 1992).

Leaders adapt their gender role to the gendered expectations of their followers. Eagly et al. (2003) showed opposing social identities show that men and women frequently vary in their assumptions for their own actions in the workplace. Hence, roles based on gender result in conflict that occurs among the common attributes of kindness along with caring related to women and the social attributes, such as competence as well as assertiveness, related with a leader. The issue is that social attributes and leadership attributes are similar to those used to define males; the process of socialization has created the assumption that leadership qualities are associated with male social qualities. Women in leadership face pressure to exhibit social qualities that fulfill the expectation that leaders should be dominant, masterful, assertive, and competent. However, this conduct is regarded as less desirable in female leaders, and

therefore, such social structures unfairly favor men. Women leaders are often criticized for exhibiting traditionally male dominated characteristics (Eagly et al., 2003; Sandow, 1979; Swiss, 1996; White, 1992).

Prejudice exists when leadership actions exhibited by women is regarded less beneficial than similar action exhibited by men. Meta-analysis studies demonstrate that women face particularly negative responses when they act in a distinctly social manner, primarily when exercising control and authority over a group. When female leaders fail to exhibit female-typical actions, they can suffer criticism and potentially be passed over for hiring and promotion (Eagly et al., 2003).

Scott and Brown (2006) developed a study from Lord and Brown's (2004) that focused on leadership centered around the follower. This study focused on the link between male and female leaders and identifying preconceived ideas that individuals translate as they learn new information. The study showed that pre-existing gender biases and stereotypes impede an individual's capability to accurately evaluate leadership behavior. They concluded that, due to the preconceived ideas, women encounter significantly more problems being perceived as leaders. The problem is that women may be viewed by their gender first and a leader second (Dworkin, 1997; Evans, 2009; Gopal, Miranda, Robichaux, & Bostrom, 1997; Scott & Brown, 2006).

Criticism of female leadership behavior is further intensified when the leader role is customarily a male culture. This incompatibility not only compromises women's success, but it also can limit women's access to leadership opportunities. When women are in exceptionally masculine leadership roles, people may challenge women's power and infer that women are incompetent to be leaders (Eagly, 2007; Gopal et al., 1997).

The mutual characteristics individuals favor in women, and social characteristics individuals favor in leaders, put an enormous burden on women leaders who attempt to learn an effective leadership style. The general agreement of the majority of the research is that transformational leadership exemplifies a teacher or coach, and might be a balanced leadership approach because it has traits that are often used to identify women, especially when leaders attend to their follower's needs (Eagly, 2007).

Since the 1990s, author and leadership consultant Sally Helgesen has conducted research on women and leadership. One significant contrast she notices is how power and influence is achieved among male and female leaders. Often, women are forced to lead by non-positional power or natural influence because they do not have a powerful position. This type of power does not consider the formal position of an individual, but is alternatively based upon charisma, authority, expertise, or connections and relationships. It is uncommon for companies to adapt or acknowledge and harness non-positional power. Flat organizations form more easily in organizations where there is an uncertainty about power due to the focus on the power exercised correlates with the level of position (Helgesen, 1990).

As stated previously, women perform better in a flat organizational structure with change management and decision-making opportunities. For example, this preference is explained in Helgesen's (1995) work that focused on building great organization, known as the web of inclusion. The development of the web was established from a more conventional workforce by altering how it operated, so that it started operating by means of inclusion, and by restructuring power in the organization. Raw data was published from employee surveys; by including the most noticeable decision-making

problems at the paper; and by informally defining its task and considering inequity, in spite of overlooking traditionally important practices like reserving special parking for high-level management. Helgesen asserts that in the future every organization will function as webs of inclusion. Organizations that function like webs appeal to the broadest possible talent base, a great benefit in an economy that is based on knowledge. Webs provide an opportunity to challenge the propensity to develop hierarchical structures, and to get resources to where they are needed. Webs improves client relations, and helps builds partnerships. Most importantly, webs eliminates division between management (those who recommend ideas) and workers (those who execute the ideas). By doing so, webs restore happiness, creativity, innovation, and a feeling of contribution to every task.

Glass Ceiling

Formed out of the 1961 Civil Rights Act, The Federal Glass Ceiling Commission was established for the purpose of advancing minorities and of women. The commission later revealed in 1995, that women had advanced to some management positions, yet still faced barriers to promotion, including gender stereotyping, exclusion from mentoring and important work assignments, and dead-end positions typically reserved for women. All the barriers support the belief that women are not able to achieve senior leadership roles because the glass ceiling. The commission indicated several important barriers to women's achievement of executive-level roles, including a lack of training and mentoring, being employed in jobs in which there is little to no opportunity for advancement or growth, exclusion from informal networks, and gender prejudices and bias (Jackson, 2001).

Several studies examined the existence of the glass ceiling for women. In 1979, the word *glass ceiling* first entered America's public discussion, when a special report was released by *The Wall Street Journal's* on traditions and prejudices in corporate America (Hymowitz & Schellhardl, 1986) which identified a perplexing new phenomenon. In corporate America, there appeared to be an impassable, invisible, barrier between women and the executive management roles, stopping women from attaining high levels of an organization regardless of their merits and accomplishments. The term *glass ceiling* instantly captured the attention of business leaders as well as the public, policymakers, and the media. The metaphor immediately spread to refer to barriers preventing women and men of color career advancement (Redwood, 1995). The Federal Glass Ceiling Commission (1995) stated that the intangible obstacles obstructing women's career advancement describes the glass ceiling. A thorough examination of the glass ceiling will be presenting, containing beliefs about working women and arguments from the opposing side.

During the early 20th century, women could not vote, and additional restrictions remained in place when women were married. In 1872, during the presidential elections, Susan B. Anthony was arrested for illegally voting. In the 1930s, under Maine law, only single women were allowed to study full-time in the state's public schools. Once a woman got married and had the financial support of her husband, it was assumed that she no longer needed her own financial support (Maume, 1999).

Women are now entering the workforce in equal numbers to men, yet still experience difficulties breaking the glass ceiling. Even in traditionally female occupations, White men have no problem getting to the top, whereas women encounter

the glass ceiling effect at the top of the corporate ladder (Maume, 1999; Williams, 1992, 1995). In 2007, Eagly identified constraints with the phrase glass ceiling, including the inference that men and women have equal access to positions of low status until women hit this single, impassable, and invisible barrier. Eagly (2007) theorizes another illustration of a leadership network, characterizing it as more of a career path perforated with obstacles every step of the way, not just at the top, that women often find it difficult to navigate.

One explanation for the glass ceiling is that women lack the education, training, and work experience for executive-level positions. This alleged lack of qualified women is known as the *pipeline problem*. A closer examination of the pipeline problem indicates that women are represented in the pipeline, but leave at different times in their career. An alternative explanation for the glass ceiling is the fact that home-work conflicts affect the advancement of women. Some women elect to take themselves out of a leadership track by choosing to focus on their family. Additionally, some women choose to work part-time in order to manage home-work conflicts. Women may leave their careers and later re-enter in a position of lower status than when they left, creating more difficulty for women to advance in their career (Northouse, 2007).

Additional research suggests that child rearing and domestic duties have caused women to be slightly behind men in work experience and employment (Bowles & McGinn, 2005). Women react to these home and career conflicts differently. Some women decide to delay having a family or getting married or not have a family at all, whereas some women choose to do it all and try to be the best in all roles, and others take time off work to establish a more equitable work-life balance.

Northouse (2007) expanded on the literature regarding the competence of women leaders, but did not discuss the prejudices and biases that exist for females as compared to their male counterparts. Research suggests prejudices and biases exist for those who ascend the corporate ladder. In 1995, when the O.J. Simpson trial was broadcasted, public prosecutor Marcia Clark was working vigorously on presenting the case against O.J. Simpson, but was publicly ridiculed for putting her job before her children. This disapproval existed despite the fact that Clark was doing what the other trial attorneys, who were male and also parents, were doing. Another example occurred 1994, when the Navy's first woman fighter pilot, Lt. Kara Hultgreen, crashed her plane while attempting to land. After the crash, there was criticism among members of the Navy stating that the Department of Defense Risk Rule should have never been withdrawn, and women should not be allowed to control fighter jets or attempt to land on an aircraft carrier. Inadequate training or pilot error was perceived to be the cause of the accident. However, a formal investigation by the Navy concluded that Lt. Hultgreen had ranked high in several key flight competencies (Perry, 1994). This study will further examine how barriers and obstacles influence women in leadership.

Gender Barriers and Obstacles

Gender bias affects women leadership opportunities. Generally, women are given positions with limited responsibility than men, and fewer executive-level positions overall. In addition, women have a less chance of receiving formal job training, mentorship, and encouragement and are generally not included in key networks that will help advance their careers when compared to men (Powell & Graves, 2003). One very significant developmental experience that influences career growth is successful

relationships with mentors, and women experience challenges and difficulty in establishing successful mentoring relationships, compared to men (Ensher & Murphy, 2005). Many women are represented in positions that involve less authority, and seen as less practical, which prevents them from obtaining top leadership positions (Bowles & McGinn, 2005). For instance, women work in specific industries, such as social services, education and human resources management, also known as the velvet ghetto.

The theory of the *velvet ghetto* describes the clustering of women in female-intensive industries, such as public relations, education, and human resources. The theory is primarily credited to a 1986 study by the International Association of Business Communicators, and was coined in response to the dramatic gender switch arising in the field of public relations taking place in America from the 1970s through the mid-1980s. The theory now seems to reflect the disparate number of women in certain fields (Northouse, 2013). In addition, the velvet ghetto did not emphasize industries that promoted and valued women's work to the same degree as men's. Furthermore, the velvet ghetto failed to address the problems women face in the workplace and the structural nature of women's marginalization. These problems include lower wages, sex-role segregation, as well as the presumption of certain qualities and feminine stereotypes (including work-life balance, lack of a career driven mindset and need for flexibility), were perceived to hinder career advancement for women (Fitch & Third, 2010).

Belief in gender differences is another barrier and source of prejudice against women leaders. The belief is that women leaders are clearly different from men leaders

in their effectiveness and leadership style. As discussed previously, any significant differences in leadership style between men leaders and women leaders can even provide a female advantage and shouldn't hinder women's career advancement (Vecchio, 2002). Further, women experience significant social hindrances and gender biases when they self-promote. When women promote their skills and are confident, they are viewed as less desirable and socially appealing and as less (Rudman, 1998). Hence, women who seek leadership positions may decide not to pursue the position because they are simply conscious of the social risks involved in being successful or they have assumed these expectations (Powell & Graves, 2003).

As stated earlier, role congruity theory describes conflict that occurs when the social qualities thought necessary in leadership are different from the stereotypical traits linked with women; thereby, causing biases against female leaders (Eagly & Karau, 2002). Additionally, female leaders are challenged with different opinions, in which behavior is linked to social processes. For example, women leaders, should be tough but not too tough. These conflicting expectations for women often create the idea that men are more competent in top positions in organizations than women, and foster harsh assessments of female leaders for not being more feminine (Carroll, 2009).

Research conducted by McKinsey and Company (Barsh & Yee, 2012) showed the same obstacles for the career growth of women such as structural obstacles, and institutional and individual mindset. Structural obstacles can be described as the difficulty women face when building alliances, and develop and foster relationships with successful executives. This research found that only about half of employees from those companies acknowledged that the senior leadership is strongly committed to the

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issue of diversity, even though senior leadership states gender diversity is a priority. McKinsey and Company alluded to the idea that if diversity is important to senior leadership that there would be more women executive-level positions. Half of the women that participated in the study, indicated that they were both primary caregiver and primary earner, it was apparent that their decision were based on their lifestyle. The majority of the men that were surveyed were the primary earner but not the primary caregivers. Thus, women may want to change roles or slow their careers, limit travel, to increase work-life balance. Institutional mindsets are seen when effective leaders are presumed to behave and be like men, and women leaders are expect to imitate similar behavior. Research data conveyed that women are not proactive and do not ask for advice. Lastly, individual mindsets have similar impact on leadership in an organization as they do on women. Even when female executives were interviewed, approximately 50% of the women felt they contributed to their slow career advancement, and most said that they should have took more risks and developed mentoring relationships earlier in their career.

Next, there is a significant difference in the pay men receive and pay women receive. The significant difference is there is both a barrier and double standard for women. Critics of the women's right and women's movement will argue that the pay gap is contributed to the lack of time between 1970s and 1990s for skilled women to enter into the workforce (Glynn, 2014).

According to a report from the American Association of University Women, in the first year in the workforce, female graduates earned 82 cents for every dollar paid to male graduates (Corbett & Hill, 2012). With a large amount of female graduates

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burdened with student loan debt, the pay gap makes it difficult for women to pay back their debt, which can cause stress for female graduates and their families.

The American Association of University Women report shows women earn less than men their first year out of college compared to men. Accordingly, women contribute more of their earnings toward repaying student loan debt. Women who graduate from college are losing out financially from the moment they enter the workforce to when they retire (Corbett & Hill, 2012). Addressing this workplace barrier will result in pay equality for future generations.

The leadership gap is a global problem whereby women are disproportionately placed in leadership positions with less power and authority compared to their counterpart (Powell & Graves, 2003). The complexity of the barriers can be considered globally to include other underrepresented minority groups and not just barriers against women. Northouse (2010) emphasized that there are several and significant reasons for eliminating these barriers in the top levels of leadership. Firstly, eliminating these barriers will achieve equal leadership opportunity by giving everyone the chance to take on leadership roles. Secondly, promoting a richly diverse group of women into leadership positions will help make businesses, government, and societal institutions more illustrative of society. Thirdly, by expanding the pool of potential candidates, companies will have a better chance of acquiring talented and skilled workers. Finally, an increase in productivity is linked to group member diversity (Forsyth, 2010). Research has shown a strong relationship between business profitability and gender diversity; as more women advance to leadership positions, business profitability advances as well (Worstall, 2016).

Women and the Leadership Gap

The last decades of the 20th century in the U.S. brought significant progress in the career advancement of women. Gender discrimination in the majority of industries declined significantly, and the amount of women ascending the corporate ladder rose steadily. However, in the 1970s and 1980s a fast rate of change occurred, and in the 1990s and 2000s it began to slow down, as the percentage of women in executive-level position remain stagnated and the narrowing of the gender wage gap stalled (Warner, 2014).

Although women represent the majority of the U.S. population, they still lag substantially behind men in representation within leadership positions. Most recent data show that women in executive-level positions make up 4.6% of Fortune 500 CEOs, only 16.9% of leadership positions of Fortune 500 board seats, and 8.1% of top wage earners. The numbers are even more alarming for women of color, for whom the leadership gap continues to widen. Women of color represent 18% of the entire population and 36.3% of the nation's population. Current data indicate that women of color represent only 11.9% of professional and managerial positions. In addition, 3.2% of women on boards in Fortune 500 companies are women of color. Most alarming, women of color are not represented in more than 66% of boards in Fortune 500 companies (Warner, 2014).

The advancement of women in positions of prominence and power in America has stalled. As discussed previously, several organizational barriers can affect women in leadership positions, including the glass ceiling, access to professional networks, lifestyle conflicts, internal motivation, stereotyping, and leadership styles. However,

additional research suggests that obstacles such as globalization can also plague the success of women in leadership. The global perspective of women leaders, such as not being competent or an effective leader, can hinder the advancement of women in executive-level positions (Elmuti, Jia, & Davis, 2009; Strout, 2001).

Globalization presents many new barriers for women in obtaining top leadership positions. Senior-level executives have greater responsibility and higher expectations than ever before. Surprisingly, the problem with globalization for women has not been because of family issues. Research suggests that globalization is a barrier for women because they have difficulty with new cultures and social norms (Elmuti et al., 2009). For instance, women are unable to accept the high expectations, such as time pressures, company travel, and relocations, and as a result they fail in their new environments. Furthermore, many countries in Asia and the Middle East will avoid dealing with female executives because of their beliefs and perceptions that women are not effective leaders in business (Strout, 2001).

However, research has shown that women are capable of business doing effectively and can add value to an organization. Kim and Starks's (2016) research on gender diversity and firm value indicated that female leaders add value to an organization. In fact, the findings show women possessed specific types of functional expertise that is currently missing in companies. Based on such findings, greater heterogeneity in leadership expertise can be associated with higher organizational value.

Role of Education

An examination of the literature specifies that there is little or no weight placed on education regarding gender equity in K-12 teaching. McRobbie (2004) asserted that social influences define the codes of sexual conduct. She further adopted the stance that society dictates the structure for gender roles. For example, in a post-feminist culture in the 1970s and 1980s where active progress for gains for women were made, women were seen as sex objects and the ironic normalization of pornography was endorsed. Human resource professionals claim that businesses that hire teenagers and young adults require sexual harassment training because teenagers and young adults do not understand what constitutes appropriate behavior (Wells, 2005). The deficiency of explicit gender equity discussions in the school indicates we are missing a critical component in shaping gender roles and expectations before both men and women enter the workplace.

In regards to higher education, some people in the business community have criticized the MBA level regarding the curriculum. The curriculum generally represents management that is essentially masculine (Simpson, 2006). Studies show that MBA programs concentration on hard skills (analysis) and not enough on soft skills (interpersonal; Kretovics, 1999; Mintzberg & Gosling, 2002; Pfeffer & Fong, 2002; Sturges, Simpson, & Altman, 2003). Simpson (2006) further examined the masculine concept of management and leadership. Prejudices are innate in the process of education since little consideration has been paid to the gendered style of dialogue that supports management education. These values are deeply rooted masculine bias, which can overwhelm any imperative for more feminine characteristics and traits. In

higher education at the MBA level, the traditional male leadership model is promoted, eliminating a chance to teach gender equity and convey certain expectations of future business leaders.

Prejudices and masculine biases can also be seen in the K-12 educational process. In K-12 education process, children are not exposed to the concept of gender equity. The educational system tend to promote traditional gender beliefs and norms of personal behavior and social interaction (Aina & Cameron, 2011). Furthermore, the K-12 educational process seems to be missing a chance to educate children on gender equity and on appropriate social norms of personal conduct that will prepare future female leaders.

Gender Equality and the Role of Culture

The role of culture significantly reinforces the glass ceiling and contributes to gender biases. When a female executive working in a financial firm was being interviewed regarding male senior executive hiring managers, she stated that most of the executive-level management looked alike, and that the executives in the firm tend to hire associates that looked and acted like them (Swiss, 1996). According to Swiss (1996), most women including women in executive-level positions will admit that unequal treatment exists in their organization.

Women are affected unfavorably when competing for a position. Men usually make the decisions, and biases can hinder women when male hiring managers are looking for fill positions (Northouse, 2007). Generally, people desire to work with those who have similar attributes. Hence, there is something about being the same gender that creates a faster connection. Often, women are denied access into important

networks, what some term the *old boys'* network. Women having access to important

networks is critical because career advancement is determined by their ability to build

relationships (Swiss, 1996). Swiss (1996) suggested that women are perceived as a

threat to men's position and influence in the workplace. To reduce the threat men

create informal networks, known as the good old boys' network.

Antifeminism groups espouse a contrasting perspective regarding the glass

ceiling—specifically, that the glass ceiling does not exists. Diana Furchtgott-Roth

(1998) suggested the glass ceiling is not real and it was created by a group of women

in an effort to increase unfair special treatment for female employees. According to

Furchtgott-Roth, women have made huge progress gaining equality in the workplace.

She contended that the only reason there is a difference in pay between women and

men is because women choose to accept less pay. Glaser and Smalley (1999) agreed

that the situation described previously is entirely possible. For example, sometimes

women decline a jobs that require long hours, transfers, impossible workloads,

frequent travel, and promotion. Anne Sweeney, senior executive of ABC Cable

Network/Disney (as cited in Pestrak, 2001) said that she was never a believer in the

glass ceiling. In fact, she believed that it was that type of thinking that prevented

women from advancing in their career more than helped them. Hence, she asserted

that the glass ceiling does not exist and imaginary, and what one concentrates on is

what one sees.

Furchtgott-Roth (1998) made another suggestion about the idea of a glass

ceiling. Supporters that believe the glass ceiling is real will state that women are not

given the same opportunity to advance to executive-level positions. The pipeline theory

does not support the existence of a glass ceiling. The outcome, in Furchtgott-Roth's

belief, is that barriers for women do not exist in the workplace because there are laws

and legal remedies that protect women against discrimination.

Gender Intelligence

For decades, a person's level of intelligence was measured by their IQ. Although

a person could predict academic and professional success using their IQ, there seemed

to be a missing element, and one of the missing elements is Gender Intelligence (Annis,

2013). Gender Intelligence reflects knowing and appreciating the different traits of men

and women beyond the apparent biological and cultural, including attitudinal and

behavioral differences (Annis, 2013; Gurian, 2010). Once leaders are aware of how and

why men and women act a certain way, leaders can engage more effectively in the

workplace.

Gender Intelligence is not about achieving a quota, ignoring or tolerating

differences, or becoming less authentic (Annis, 2013; Gurian, 2010). Acknowledging

Gender Intelligence means understanding and appreciating how men and women can

contribute to an organization's success. Understanding and appreciating the natural

talents of men and women will result in men and women trusting each other.

The most important advantage for companies that practice Gender Intelligence is

inclusive leadership. Gender Intelligence strengthens global competitiveness. In

addition, Gender Intelligence improves recruitment and retention methods, decision-

making, and improvement in products and services, and is good for the company's

bottom-line (Annis, 2013; Gurian, 2010). Furthermore, companies that practice Gender

Intelligence will create a culture that will allow them to recruit and retain highly skilled workers. The next sections will discuss women and the IT culture.

Women in the IT Industry

The advancement of technology and the shift to an economy based on information and knowledge have resulted in a demand for extremely skilled individuals that specialize in technology. The demand for skilled individuals who specialize in technology goes beyond IT, but it expands into various industries, such as healthcare and education. Even though it helped guide the Technology Age, there is considerable evidence that the U.S. struggles to keep up with the demands for a new skilled IT workforce (Office of Technology Policy, 1997). The consequences of the demands of the rapidly growing IT industry is globalization, but also due to women's skill-set, which is not completely recognized. There are significant consequences that exist for the U.S. economy (Halweg, 2002). The shortage of skilled working in the IT field could result in potentially billions of dollars lost per year for the U.S. (Benjamin, 2002). Such training can be expanded to meet the current demand for IT skills (Office of Technology Policy, 1997).

Concurrent with an unusual opportunity for IT professionals on a global level, the field is undergoing a crisis in regards to retaining a highly skilled workforce that stems from an increasing number of computer science and information systems graduates and a serious mismatch in skills. Research conducted in the United Kingdom on digital skills crisis indicated that students are graduating without the skill that employers require and are unable to advance in their industry (Bennett et al., 2008; Charette, 2013; Marginson Tytler, Freeman, & Roberts, 2013; Science and Technology Committee, House of

Commons, 2016). A study conducted in 2014-2015 showed IT graduates have the highest unemployment rates compared to any other degree (Science and Technology Committee, House of Commons, 2016). This is believed to be because there is a serious mismatch in what is being taught in IT programs and what IT companies require. Some will argue that the skills crisis is due, in part, to the limited number of STEM programs in schools that contribute to certain portions of the population being underrepresented in IT. Research conducted on STEM programs and community colleges found that the skills gap in technology is due to STEM education not being consistent across underrepresented groups (Hagedorn & Purnamasari, 2012). Despite significant increase in women in the IT industry in the 21st century, there remains a gender disparity in IT companies. The pipeline problem for women in IT is a documented and familiar occurrence where the percentage of women to men interested in technology from K-12 education to when they enter the workforce shrinks dramatically (Bryant & Irwin, 2001; Camp, 2001, 2002; Camp, Miller, & Davies, 1999; Davies & Camp, 2000; Freeman & Aspray, 1999; NSF, 2000; Thom; 2001). Recent data show that only 29% of female college students choose IT-related majors as compared to 40% of male college students (Bidwell, 2015).

The two most important theoretical views used to describe the involvement of women with IT are social construction and essentialism. These theoretical views are evaluated subsequently in order to give awareness on the problem of the underrepresentation of women in IT. The idea of essentialism focuses on a belief in essential distinction between women and men to describe the idea that IT is an environment dominated by men. The social construction view emphasizes IT as a male

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domain, which is construed as complex with regard to female identity and social construction (Duguid & Thomas-Hunt, 2015).

The essentialist view focuses on a belief in unified, fixed, and different male and female natures (Wajcman, 1991). When essentialism is practiced in the IT field, this viewpoint emphasis is placed on innate differences between women and men to describe the differences in their connection to technology (and, by implication, the involvement of women working in the IT industry). In addition, the essentialist perspective observes differences in women's and men's actions attributed to the group-level, inherent differences that are centered on biological and psychological characteristics (Trauth, 2002). The essentialist viewpoint has birthed inquiry that identifies gender as a set variable that can be controlled within a positivist epistemology. For instance, from the research of Venkatesh and Morris (2000) and Venkatesh, Morris, and Ackerman (2000) includes gender as a variable in the practice of the technology acceptance model (TAM) to understand differences in individual adoption and communal usage of technology in organizations. Their findings suggest that men use different criteria to make choices about technology, and are influenced by the usefulness of the technology, whereas women are influenced by social elements, such as social media.

An alternative explanation for women's relationship to IT (and, by inference, their participation in the information technology industry) can be found in societal rather than biological forces. Research on gender and information technology, in particular (e.g., Adam, Howcroft, & Richardson, 2001), 1994; Balka & Smith, 2000; Eriksson, Kitchenham, & Tijdens, 1991; Lovegrove & Segal, 1991; Spender, 1995; Star, 1995;

Webster, 1996); and that of technology and gender in general (e.g., Cockbum, 1983, 1988; Cockbum & Ormrod, 1993; Wajcman, 1991), look to social construction theories (Berger & Luckmann, 1966) rather than biological and psychological theories. The social construction perspective focuses on the social framing of IT as masculine compares to the social construction of femininity in such a way as to alienate women in IT. The conclusion that can be drawn from this notion about addressing the level of women's involvement in the IT profession is that the reasoning remains in the social construction of the IT profession as the work that only men perform (Trauth, 2002).

Von Hellens and colleagues (von Hellens, Nielsen, & Trauth, 2000; von Hellens, Pringle, Nielsen, & Greenhill, 2001) were interested in women who address the feeling of being out of place by establishing survival strategies in their effort to conform to a culture dominated by men. An ideology within the social constructivist perspective focuses on the need to recondition the IT industry to create an inclusive culture that supports and promotes women's career advancement. Webster (1996) adopts this method, paying attention to the social development of female gender identity on women's connection to technology in the workplace. Webster asserted that the most important element of creating a female domain is structural equality. One can conclude that her method to addressing structural equality in the IT industry would be to evaluate group dynamics in order to resolve gender inequalities in male-dominated industries. Spender's (1995) primary concern is with the values of women. She examined the role of women as a social group on the Internet with the intention of increasing the amount of women using technology. Her reasoning is that the large number of female values into the social group will increase the number of women using the Internet. By extending

this premise, one can determine that exact same thing would occur as more women entered the IT industry.

Although the opportunity to increase women's participation in IT industry seems promising, recent research shows that the percentage of women leaders in IT are disturbingly low. Despite the fact that there are many theories as to why women are underrepresented in IT, there are no actual solutions to the problem. However, a Harvard Business Review study suggested that the advancement of women in IT will only be achieved if organizations make systematic changes. For example, more women are promoted when women leaders provide coaching on how to advance in the IT industry (Hewlett, 2014). Women have made significant strides in numerous industries, notably in the physical sciences; however, their involvement in computer science remains constantly low. Formed on the unforeseen and strong societal contribution women have made in other industries, it seems logical to assume that more women leaders in IT will have a significant impact on business results and operations (Fountain, 2000).

Women Contribution to Information Technology

Women have made many contributions in the science and technical arena. Although the majority of women's jobs consisted of office-related work during this period, they performed many tasks, such as typing, which helped shaped the computer science profession. Their performance showed that women have the capability to think, act, and progress as men (Harding, 1998). However, women who entered the IT workforce in the 1970s and 1980s recall the isolation they felt starting out (Bentsen, 2000). Despite the negative effects related to women entering the IT workforce, Sandra

Harding (1998), author of the article, "Women, Science, and Society," stated her views on the positive results that women whose expertise is in the science and technical fields have had on the technology field. Harding showed how sciences, institutions, and cultural practices have influenced women's desire to enter the IT workforce, because increasing women's participation in science advances both women in general and the sciences. For example, women's advancements in fields perceived to be most resistant to them has provided powerful encouragement and motivation to women seeking equality in other career endeavors. Women today are encouraged by the successes of women in the science and technology fields. Thus, in those instances where technology and science organizations have made it achievable for the advancement of women in all levels of the organization, they have provided a model for other fields. The entrance of women into science and technology industries allows the industries to take partial credit for providing an example of what is possible far above the limitations of technological and scientific organizations themselves, and for bringing awareness to social justice issues. Research on female role models in technology found that the representation of women in technology impacts other women's perception of the technology field and can potentially improve women's participation in IT industry. When aspiring female executives receive support from current female executives in IT, it helps them successfully navigate in an environment with unspoken or subtle biases that make it hard for aspiring female executives to advance in the IT industry (Hewlett et al., 2008). In addition, more women in IT provide positive role models for women and reduce implicit bias that IT is a masculine industry. Furthermore, changing implicit gendered

biases about technology can influence the investment that women make in their careers (Young, Rudman, Buettner, & McLean, 2013). The next sections will explore the culture

within the IT industry, the importance of gender diversity in the workplace, and diversity in the IT industry.

Information Technology and Organizational Culture

Some of the top technology companies experience difficulty in achieving gender diversity in executive-level positions. For example, top tech companies reveal that the pursuit of a more women in IT is not going well. Recent data shows that tech companies still need to make improvements in gender diversity in senior leadership (Marcus, 2015; Obrien, 2016).

Data showed that women make up 33% of its overall U.S. workforce, and make up 17% when looking specifically at jobs in the IT field (Obrien, 2016). Facebook's latest diversity report indicated that women represent 27% of senior executives compared with 23% in the previous year. The tech company continues to be removed from a more gender equitable workforce. There has been little progress toward closing the gender gap, despite Facebook's internal and external efforts. The lack of women in IT remains ingrained, troublesome problem in Silicon Valley. Many believe that the reason the lack of women in IT is primarily due to the IT culture that promotes an aggressive environment that is typically associated with men (Gellman & Wells, 2016; Ingersol, 2016; Marcus, 2015; Obrien, 2016; Zeiden, 2016).

Ingersol (2016) suggested that the IT leadership gap problem is in actuality a cultural problem, exploring tech culture from a woman's perspective. The problem is

seen as a cultural problem due to fact that the IT industry promotes more masculine

qualities than feminine ones. In addition, the IT culture is perceived to reward

aggressive, think-on-your feet, answer-with-confidence interactions (Ingersol, 2016;

Marcus, 2015; Obrien, 2016). In the attempt to close the leadership gap, IT companies

have attempted to accommodate women with more company perks, such as daycare

centers and flex time. However, these benefits have not translated into an increase of

women in the IT field. Many women in IT have recommended that IT companies can

close the leadership gender gap by implementing innovative and creative strategies to

increase diversity in the IT industry.

Workplace Diversity

A large amount of literature has been written about the purpose of diversity

efforts in business (Dhillon, 2009; Jayne & Dipboye, 2004; Kulik & Roberson, 2008;

Pless & Maak, 2004). Although these purposes may vary based on the business, they

are typically related in the following respects: increasing awareness about diversity,

improving perspectives about diversity, and developing diversity expertise (Kulik &

Roberson, 2008). Diversity is recognized as vital for good business and profitability

(Jayne & Dipboye, 2004). According to Pless and Maak (2004), diversity is

predominantly a cultural matter concerning values, norms, beliefs, and expectations,

and so diversity is an ethical inquiry determined by the foundational ideologies of

human existence. Pless and Maak stated that ethical questions, need to be considered

in order for diversity efforts to be effective.

Furthermore, Dhillon (2009) indicated that diversity is about cultivating the right

blend of individuals with the right set of skills and competencies. Workforce inclusion, in

contrast, is about creating the desired organizational culture—making sure the blend of people is a good fit for the organization, with individuality being encouraged and valued. It's also about the way an organization welcomes people. Therefore, Dhillon believes that in order to achieve the best results it is good to focus on both diversity and inclusion, as they complement each other and are more effective when applied together, then related to diversity strategy, inclusion seeks to embrace and influence all differences between and among the individuals of a given organization or group to benefit all members of that group or organization (Jayne & Dipboye, 2004).

Enhancement of workforce diversity occurs when a culture of inclusion is created within the organization (Dhillon, 2009; Jayne & Dipboye, 2004; Kulik & Roberson, 2008; Pless & Maak, 2004). Inclusion in an organization can be described as a culture that allows individuals with diverse backgrounds, attitudes, and perspectives of how to collaborate successfully and perform at their highest potential to achieve a goal. In such an organizational culture, diverse opinions are respected and valued, and all members are urged to make a meaningful and distinctive contribution (Pless & Maak, 2004).

Gender Diversity in Information Technology

Although in the U.S. there is an increase in diversity in nearly all sectors of the economy, the underrepresentation of women in technology companies is still problematic. Diversity in the IT industry still a major issue; this assertion is supported by disturbing statistics, which indicate that women represent only 30% of the workforce in the technology field. Moreover, women represent only 9% of management positions and represent only 14% of C-Suite positions in global technology companies (Moran, 2015;

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Stelling, 2014; Warner, 2014, 2015). The data imply that the culture in the technology industry is predominately made up of white men.

As emphasized in the Anita Borg Institute report (as cited in Worthen, 2009), the effects of this situation that tech companies are at risk of losing underrepresented talent. Lack of diversity at the top levels hinders talent recruitment and retention. Also, tech companies are in danger of losing the benefits of diverse gender perspectives in decision-making and problem-solving. This kind of problem potentially results in lost profits for companies as it creates a disconnect between those designing technology and those using it, lack of sponsors, mentors, and role models, and a feeling of exclusion from essential social groups at work (Hastings, 2009; Thomson, 1999).

Furthermore, the problem is with biased hiring, promotion, training opportunities, evaluation practices, and salary levels. For instance, women with qualifications that are equal to or higher than those of men tend to be paid lower salaries than their male counterparts for doing work of comparable knowledge, skill, and intensity (Black, Haviland, Sanders, & Taylor, 2006; Neal & Johnson, 1996; Trejo, 1997). Thus, companies must take necessary actions to limit or eliminate practices that could be portrayed as discriminatory towards women.

Perhaps one way to convey the importance of the representation of women in all positions of an IT company and diversity is shown in research conducted by Moody, Woszcynski, Beise, and Myers (2003). The study focused on diversity in the IT workforce and provided opportunities to create a more diverse workforce. Research showed that an IT company's ability to recruit diverse management had a positive effect on gender diversity outcomes. Furthermore, the research showed that diversity in

the IT workforce is important, and without women in management, IT companies will continue to experience gender issues.

Women add value to an organization by providing different points of view, market expertise, and approaches to problem solving, resulting in greater profit than the organization's less-diverse rivals (Cheng, 2015). Therefore, it would be extremely beneficial for technology industry to improve gender diversity in leadership in order to gain diverse perspectives and to increase profits. Furthermore, the advancement of women leaders is beneficial to IT companies because it will help increase profitability and sustainability.

Technology Management and Diversity

The role of technology management in ingraining a strong and positive diversity environment through purposeful leadership is crucial to an organization's success and competitiveness (Friday & Friday, 2003; Kreitz, 2008; Leo & Barton, 2006; Ng, 2008; Parks, Crepeau, Knouse, & McDonald, 2008; Podsakoff, McKenzie, Moorman, & Fretter, 2008). A study conducted by the Society of Human Resource Management on diversity and inclusiveness found that CEOs are the main promoters of diversity and inclusion in organizations (Davis, 2009). Leadership at the top level is essential in creating a diverse and inclusive culture in technology organizations.

Furthermore, leadership, especially inclusive forms of leadership, is important for maximizing diverse human capital, and inclusive leaders help increase financial gain (Nishii & Mayer, 2009). Leaders in technology companies deal not only with engineering and technology problems, but also other issues such as people issues

(the needs of the employees and in other departments), business issues (identifying the role of each department in achieving organizational goals and developing strategies), and leadership issues (employee motivation and expanding influence in the organization).

Although diversity initiatives are normally supported in organizations, the notion that they have been unsuccessful in producing the desired profits has led to demands from senior leadership for a new focus on diversity in leadership that will enhance diversity performance (Combs, 2002). There are good business explanations for promoting gender diversity in a multicultural workplace. Diversity policies create a work environment that brings about beneficial results, such as better decision-making practices, a boost in creativity and innovation, and strengthened business competitiveness (Dessler, 2001). An exclusive organizational culture could be implied or overt. Regardless of the case, research has found that if exclusive organizational culture persists it can result in a lack of job satisfaction, absenteeism, low morale, and low well-being, which is counterproductive for business performance (Avery, McKay, Wilson, & Tonidandel, 2007; Mor Barak & Levin, 2002).

Research has found that companies in which subordinates and managers perceived less friendly diversity environments achieved lower sales growth compared to companies in which highly pro-diversity environments were perceived. This finding lends credibility to the idea that valuing diversity in the workplace leads to the positive financial results (McKay, Avery, & Morris, 2009). The keys to successful leadership are (a) creating sustainability in the organization, (b) developing a caring leadership, and (c) promoting diversity. To achieve diversity, technology companies can take the

following steps: improving gender diversity in leadership, developing a business case for diversity, building a basis for future demographic changes, and being innovative in recruitment and retention (Jazzar & Algozzine, 2007; G. Thomas, 2005).

Also, the leadership and management in technology companies must look at the ways in which diversity efforts in education and job training are organized. Research conducted by Combs and Luthans (2007) on the effects of diversity self-efficacy suggests that a developmental approach is effective, as it strengthens manager and employee confidence to address a variety of problems related to diversity, such as gender diversity and cross-cultural. These issues are very important, particularly in today's global economy and when considering of the growing demographic changes in the American workforce, including IT companies.

Summary

The field of information technology continues to develop at an exponential rate, creating a constant and rapidly growing job pool for skilled IT workers. However, the field of IT is experiencing a considerable shortage of women. This means that in order for companies to compete globally, they are going to have to create cutting edge, creative opportunities to attract, recruit, retain, and promote women in IT occupations (Hewlett, 2014; Lien, 2015).

Women have contributed to the discovery, development, and delivery of the IT field. From World War II to the present time period, several female pioneers have contributed significantly to the technology field (Cole, 2014). However, even with women's advancements in the workplace, the lack of women in senior management in IT remains an issue, and their participation at the senior level is even more minimal. The

narrowing of the leadership gap in the IT industry will depend on current female

executives in IT coaching and developing a model for aspiring female leaders in IT

(Hewlett, 2014; Lien, 2015; Young et al., 2013). The reason for this study is to identify

leadership best practices for female executives and aspiring women in IT executive-

level positions with the purpose of closing the leadership gender gap in the IT industry.

Chapter 3: Research Design and Methodology

This chapter restates the research questions and describes the nature of the study, assumptions of qualitative studies, and the strengths and weaknesses of qualitative research. Chapter 3 describes the methodology of the study, the nature of the phenomenological approach, and the strengths, weakness, and appropriateness of the phenomenological approach. Next this chapter describes the participant selection process by defining the analysis unit and the population; the sample and sample size, the overall strategy of purposive sampling; applying the criteria for inclusion, exclusion, and maximum variation; sampling frame; and process for final master list of participants. The chapter goes on to discuss the protection of human subjects, and the Pepperdine's IRB approval process. In addition, this chapter describes the data collection process, interview techniques and protocol, and statement of personal bias, bracketing, and epoche. Finally, this chapter discusses the data analysis, unstructured coding, coding process, external validity, and the process to establish inter-rater reliability and the coding results.

Restatement of Research Questions

Research questions are designed to impose structure and boundaries on the study (Gray, 2013). This study aims to answer the following four research questions:

- *RQ1*: What leadership best practices and strategies do female executives use in the information technology industry?
- *RQ2*: What challenges do female executives face in the information technology industry?

- *RQ3*: How do female executives measure their success in the information

   technology industry?

- *RQ4*: What recommendations would female executives make to aspiring

   female executives in the information technology industry?

Nature of the Study

The criteria for choosing a research design include the research problem, the

audience for whom the study was written, and the researcher's personal experience

(Creswell, 2013). If the research problem requires (a) the identification of elements that

impact the outcome, (b) the effectiveness of an intervention, and (c) using the best

instruments for results, then a researcher should use a quantitative approach (Gray,

2013). However, if a phenomenon needs to be examined and understood, then it is

best to use a qualitative approach (Creswell, 2013). Since this study seeks to examine a

phenomenon a descriptive qualitative approach was selected.

Qualitative research is constructed based on the use of observation, interviews,

questionnaires, and document analysis (Gray, 2013). The elements for qualitative

research involve emerging methods, open-ended questions, interview data, themes,

patterns, and interpretation (Creswell, 2013). One criticism of qualitative research is that

it is often regarded as less reliable and accurate than quantitative research. Contrary to

this belief, qualitative research can be a powerful analytical source because it is

gathered in a real-life setting, very comprehensive, and can show why and how things

happen (Gray, 2013). This research study used a qualitative method to address the

research questions. Chosen participants were asked open-ended questions based on

the research questions to gather data based on people's experiences, perceptions,

opinions, feelings, and knowledge. Understanding the meaning of the participants'

experiences, opinions, feelings, and knowledge is the goal of qualitative research

(Maxwell, 2005).

In a qualitative approach, general ideas are posed from prior experiences and

literature; reviews patterns and themes to analyze data for categories; asks open-ended

questions of participants; and gathers information from interviews. Qualitative

approaches usually do not employ statistical interpretation (Creswell, 2013). Qualitative

studies can be applied to numerous situations, usually to gain a new outlook on an

issue, where little information is known about a phenomenon, and to identify the types

of variables and concepts that might be tested using a quantitative approach in the

future (Gray, 2013). Finally, a qualitative approach can be best applied to an issue

related to oppression of a group of people by using interviews to determine if they

experienced personal oppression (Creswell, 2013). A qualitative approach was deemed

the appropriate design for this study because it is used to address the marginalization of

women in executive-level positions in the IT industry and how these women have

personally experienced and overcome this marginalization.

Understanding the experiences, opinions, feelings, and knowledge of current

female executive in IT, for instance, will help identify common themes regarding their

successes and challenges, and help identify leadership best practices for aspiring

female executives in the IT industry. Miles, Huberman, and Saldana (2013) found that

the majority of qualitative research requires numerous elements. The research is

conducted through intense contact within a real life situation or specific field. The role of

the researcher is to take into account all factors of the study, containing the ideas of

participants. Categories and themes that develop from the data collection are often studied and confirmed by informants, with the primary emphasis of the study is to understand and describe people's actions (Gray, 2013).

Qualitative research is seen as an evolving approach. Provisional ideas may be present at the beginning of the study but change can occur as a result of examining the data (Patton, 2002). Creswell (2013) described the following strengths of qualitative research: it collects participant meanings, brings personal principles into the study, confirms the truthfulness of findings, creates an agenda for change or reform, and invites collaboration with participants. According to Gray (2013), the weaknesses of the qualitative research are: the data are open to multiple interpretations, and the researcher's own reflections and feelings on become part of the data. Gray stated the following assumptions of qualitative research: the design is unscientific and based on subjective impression, the design lacks reproducibility, and another researcher might use the same data to come to completely different inferences.

Qualitative research is based primarily on constructivist perspectives. Constructive perspectives provide diverse explanations of personal experiences that are historically and socially constructed, for the purpose for implementing change and/or creating a pattern (Creswell, 2003). This study included both constructivist and advocacy perspectives. The research study consisted of diverse opinions and experiences from female executives in the IT with the intent to change the current state of the underrepresentation of women leaders in the IT industry.

Normally, interpretive and critical theory are used to describe qualitative studies Critical theory is used to comprehend and analyze the influence of behavior within

social structures (Locke, Silverman, & Spirduso, 2004). Interpretive research is used to understand the participant's perspective about a situation, which is achieved through observation, analysis of documents, and interviews (Evans, 2009; Locke et al., 2004). Understanding the strengths and challenges of female executives in the IT industry can be best accomplished via interpretive research. In the interpretive research method, the researcher operates as the principal instrument for data collection by creating an extensive compilation of rich data collected of wide range of records regarding context, people, actions, and the participants' perceptions.

Methodology

A phenomenological design was used for this research study. The study's interpretive framework and philosophical premise were social construction and axiological (Creswell, 2003). Phenomenology goal places emphasis on a person's experiences and idea of the world (Langdridge, 2007). This approach was deemed the most useful for this study because stories allow professionals to learn about the nature of their work and the importance of their stories (Danzing & Harris, 1996).

Therefore, a phenomenological study is not based on perception or idea but lived experience of the world (Morse & Richards, 2002; Quay, 2016). Phenomenology is an attempt to eliminate all logic about what is true (Creswell, 2013). Thus, the primary assumption that guides a phenomenological research study are (a) that individuals are part of their relationships with experiences, things, events, and things (Morse & Richards, 2002); (b) that there is something unique and intriguing about people's ideas and interpretation of their own lived experiences (Creswell, 2013; Quay, 2016).

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Strengths and weaknesses. The strengths of a phenomenology methodology are that it explains a phenomenon based on people's experiences, creates new meaning, and attempts to avoid ways in which the prejudices of the researcher bias the data (Gray, 2013). Some of the challenges of a phenomenology study are that it requires knowledge of broader philosophical assumptions, requires participants to be carefully selected in order to have the experienced the phenomenon in question, and requires the researcher to reflect on how his or her personal understandings are introduced into the research study (Creswell, 2013).

Based on an ontological view of human experience, phenomenology provides a descriptive analysis of an individual's' subjective and sometimes complex experiences (Creswell, 2014). An ontological view provides structures that give meaning to shared thoughts of the world (Kaufer & Chemero, 2015). Hermeneutic or transcendental view, assumes phenomenology view, assumes phenomenology research reflects specific views of experiences and ways to evaluate data (Moerer-Urdahl & Creswell, 2004).

Hermeneutic phenomenology focuses on reflective interpretation through the history of an experience to gain in-depth understanding, whereas, transcendental phenomenology focuses on meaning as a systematic standard (Kaufer & Chemero, 2015; Moerer-Urdahl & Creswell, 2004; Moustakas, 1994). This study employs a transcendental phenomenological approach, a methodology which emphasizes setting aside preconceived ideas of knowing about an experience thus creating a transcendental state of openness (Moustakas, 1994).

Structured process of phenomenology. Qualitative research can be conducted by using a phenomenological design in which the researcher describes

individuals' lived experiences related to a phenomenon (Creswell, 2013).

Phenomenology typically involves gathering data based upon participants' accounts

(Giorgi, 2009; Moustakas, 1994). The most frequently used method to obtain data for

qualitative studies is interviews, to identify themes and patterns based upon

participants' statements (Creswell, 2003; Locke et al., 2004). This study utilized

interviews for data collection; the interview process is explained thoroughly in the Data

Collection section.

The recommended steps for conducting a phenomenology study include: (a) the

focus of the study is on the shared experience of the participants to determine best

practices; (b) identifying a specific phenomenon for the study, which in this study is best

practices and strategies for female executives in the IT industry; (c) ensuring that

specific themes are highlighted; (d) bracketing the researcher's own experiences; (e)

conducting in-depth interviews to obtain relevant and accurate data; (f) utilizing *textual*

description to share how the specific phenomena was experienced; and (g) ensuring

that the nature of the phenomena is expressed from the textual description (Creswell,

2013; Morse & Richards, 2002; Moustakas, 1994).

Appropriateness of phenomenology methodology. This study sought to

explain a real life phenomenon and experience. Creswell (2007) stated that a lived

experience is considered a phenomenological method and is qualitative in nature. A

phenomenological approach was uniquely suited for this study primarily based on the

opportunity to emphasize the full richness and the depth of a group of 15 female

executives in the IT industry. As discussed previously, phenomenology emphasizes the

specific phenomenon that is being studied, which were the best practices and strategies for female executives in the IT industry. The level of detail with a sample size of 15 female executives in the IT industry ensured that best practices, strategies, experiences, and challenges are accurately recorded and reported using a phenomenology approach. Therefore, it is necessary to ensure that the lived experience of the female executives is expressed as easily as possible.

Research Design

This qualitative study's unit of analysis was a female executive that work in the IT industry. The notion of qualitative research was the purposeful selection of participants to help understand the problem and research questions (Creswell, 2013). The participants were purposefully selected for the proposed study. The research study attempted to identify leadership best practices of female executives in technology industry. To accomplish this task, the unit analysis for this study had the following elements:

1. Obtained at least a Master's degree with training and/or expertise in the IT industry.

2. Possessed a basic understanding of the ideologies and culture of the IT industry.

3. Held an executive-level position (director or above) in the IT industry for a minimum of 2 years.

The population included participants who were from different ethnicities. There were no restrictions regarding socio-economic status, health, family, or professional affiliations. Ideally, when conducting qualitative research, the sample from the

population should include people who have the characteristics or who live in situations relevant to the study (Mays & Pope, 2000). Therefore, participants were chosen and interviewed for the study due to their ability to provide a deeper understanding based on their knowledge, experiences, understanding, and ability to offer leadership best practices for female executives in the IT industry.

Sample size. In qualitative research, the goal is to choose respondents that are likely to produce rich and deep levels of understanding (Thompson, 1999). For the purpose of this study, female executives were defined as female executives who currently hold senior level positions (director or above) within their organization in the IT industry. From this population, a sample of 15 female executives in the IT industry was invited to participate in the study. In addition, a sampling strategy was used to select participants based on probability sampling. Qualitative research defines a sample as a representative of the desired population being studied. Probability sampling includes various sampling methods (Gray, 2013). Strategic purposeful sampling was utilized to obtain the sample for this study.

Creswell (2008) suggested that in a phenomenological study the research can study between three and 10 participants. According to Gray (2013) sample sizes can be a small as 10 or as large as 20. However, in practice, the sample size for qualitative research should be large enough to extract thick and rich descriptions of the phenomenon under investigation (Flick, 2009). Patton (2002) suggested that the size of the sample is based on the purpose of the study, what information will be valuable, and what can be done with available time and resources.

A small sample size is ideal for using interviews to collect data (Isaac & Michael, 1995; Patton, 2002), as was the case with this study. The sample size included 15 participants. This sample size for this study was reviewed by peers and presented to and accepted by the dissertation committee.

Purposive sampling. Purposive sampling included individuals from various IT companies who represented female executives in the IT industry. This convenience sample included female executives employed at top tier companies in the IT industry. During purposive sampling, the researcher uses personal knowledge to select the group to be studied (Gay & Airasian, 2000). Purposive sampling is the insight of knowledge that is collected from a well-informed sample for solving problems (Isaac & Michael, 1995; McMillan & Schumacher, 2014). Diverse characteristics were selected to define the sample (Isaac & Michael, 1995; McMillan & Schumacher, 2014). It was essential to include the views of experience or beliefs and practices utilized that have helped female executives successfully obtain executive-level positions in the IT industry while at the same time not being concerned with representing the beliefs equally.

Participant selection. In a qualitative research study, participants can be selected using probability or nonprobability approach (Strauss & Cobin, 1990). In addition, an applicable sample size depends on the purpose of the inquiry (Patton, 2002). Most importantly, in a phenomenological study the participants must have experience and knowledge on the phenomenon being studied (Creswell, 2008).

Sampling frame to create the master list. The following steps were taken for this study to reach the female executives of the NDC's 2015 and 2016 Top 50 Powerful Women in Technology:

1. The NDC is a nonprofit organization that educates business leaders and promotes and advocates for diversity in various industries. In addition, the NDC recognizes and honors outstanding leaders in various industries. Each year the NDC creates a list of the Top 50 Most Powerful Women in Technology. The women included on this list are the most influential leaders in the technology industry. They women are senior leaders in their organizations, change agents, and innovators. They are also inspirational for others who wish to thrive while contributing to business growth. The awardees must meet the following conditions:

   ● Senior leader in their organization

   ● Impacts business growth or strategic leadership

   ● Multiple achievements in areas the industry

   ● Involved in mentorship and sponsorship

   ● Upholds a high-level of ethical behavior

   ● Displays a commitment to corporate social responsibility

2. A detailed email was sent to the president of the NDC. The detailed email described the research study and requested access to the women on the list for the 2016 and 2015 Top Most Power Women in Tech.

3. A letter about the study was prepared for the NDC President to forward to prospective participants who were on the 2016 and 2015 Top Most Power Women in Tech list (Appendix A). The president of the NDC then emailed the letter to the women and ask them about volunteering to participate in the research study. The president of the NDC gathered the information for those

individuals that agreed to volunteer to participate in the study. The list of

volunteers and contact information was provided to the researcher.

4. The information about the participants provided by the NDC was reviewed to

    ensure that the individuals fit the inclusion criteria. This process provided an

    initial pool of participants for this study.

5. After these individuals were identified as potential participants, they were

    contacted using the approved IRB recruitment script (Appendix B and

    Appendix C) via phone or by using the researcher's school email address to

    schedule a face-to-face interview. The meetings were added to the study

    calendar.

The following steps were taken for to reach the female executives who were

members of WITI-Los Angeles.

1. A public source in the form of a website named was used for this study. WITI

    helps members advance by providing access and support from other

    professional women in the technology industry. The webpages were reviewed

    to determine the appropriate person(s) to contact in order to gain access to

    send a site permission letter (Appendix D) to WITI members.

2. WITI was contacted via telephone to speak to someone from the leadership

    team about the research study and requested access to the WITI

    membership list.

3. A detailed email was then sent to the contact at WITI about the study. The

    contact from WITI provided a membership list and contact information for the

    study.

4. The information provided by WITI contact about the members was reviewed to ensure that the individuals fit the inclusion criteria. This provided an initial pool of participants for this study.

5. After these individuals were identified as potential participants, they were contacted them using the approved IRB recruitment script via phone or email to schedule a face-to-face interview.

The following steps were taken to reach the female executives from the Anita Borg Institute Grace Hopper Celebration of Women in Computing 2016 Conference:

1. To obtain site permission a website named Anita Borg Institute Grace Hopper Celebration of Women in Computing 2016 Conference was used for this study. Each year, the Anita Borg Institute highlights the contribution of women in computing. The conference speakers and honorees are leaders in the technology industry. The webpages were reviewed to determine the appropriate person(s) to contact to send a site permission letter (Appendix E) in order to gain access to conference speakers and honorees.

2. The Anita Borg Institute was contacted via telephone to speak with the Director of the Grace Hopper Celebration Hopper Celebration of Women in Computing. The Director of the Grace Hopper Celebration of Women in Computing was contacted about the research study and asked to provide access to the list of speakers and honorees at the Grace Hopper Celebration of Women in Computing 2016 Conference. The leadership team was informed that they would receive a follow-up email summarizing their conversation.

3. A detailed follow-up email was then sent to the contact at Anita Borg Institute about the study. The contact from the Anita Borg Institute provided the list and contact information of the speakers and honorees from the conference.

4. The list of speakers and honorees provided by Anita Borg Institute was reviewed to ensure that the individuals fit the inclusion criteria. This process provided an initial pool of participants for this study.

5. After these individuals were identified as potential participants, they were contacted using the approved IRB recruitment script via phone or email.

To obtain the master list, criteria for inclusion and exclusion were applied. If the sample had been larger than 20, criteria for maximum variation would have been applied. The final list using the process of inclusion and exclusion included female executives who are currently employed in IT companies and who have been in leadership roles for 2 or more years.

Criteria for inclusion. The standards for inclusion for this study were:

- Obtained at least a Master's degree with training and/or expertise in the IT industry.

- Possessed a basic understanding of the ideologies and culture of the IT industry.

- Held an executive-level position (director or above) in the IT industry for a minimum of 2 years.

- Female executives on a public list for the National Diversity Council (NDC) 2016 Top 50 Powerful Women in Technology (National Diversity Council,

2016) and 2015 Top 50 Powerful Women in Tech (National Diversity

Council, 2015).

- Female executives who are members of Women in Technology

  International (WITI) – Los Angeles (Women in Technology International

  [WITI], 2016)

- Female executives who have participated in the Anita Borg Institute Grace

  Hopper Celebration of Women in Computing 2016 Conference (Anita Borg

  Institute, 2016).

- If referrals are received who meet the criteria, those individuals were

  asked to participate in the study.

These criteria for inclusion permitted verification of the prospective participants in the study, based on their resume/CV and basic understanding of the ideologies and culture of the IT industry. Furthermore, these individuals had real-world work experience in the IT industry where they acquired knowledge of the IT industry culture.

Criteria for exclusion. The standards for exclusion were as follows:

- Female executives who worked for startups.

- Female executives who worked at nonprofit organizations.

Criteria for maximum variation. Heterogeneity sampling helped increase an expansive, comprehensive spectrum of thoughts from a diverse range of participants (Trochim & Donnelly, 2001). In addition, heterogeneity sampling permitted for significant themes to be established for a specific population. Participants for this study were determined through purposeful sampling approach and applying a strategy of maximum variation.

This study employed a purposive sampling methodology to assure that the 15 selected participants reflect maximum saturation and provide richness in the data. The criteria for the maximum variation was the participants' experience levels include a minimum of 2 years. In addition, participants reflected a diversity of age and ethnicity. Furthermore, female executives in C-Suite positions were given preference. The list was ranked by title, with C-Suite executives at the top, with the intent to have as many C-Suite executives as possible because they are an exemplary group.

Protection of Human Subjects

Punch (2005) stated that ethical concerns can present a problem for qualitative researchers who deal with the most intimate and sensitive matters in the participant's life. Therefore, it is essential that the researcher addresses ethical concerns systematically. The following steps were taken to address ethical issues for this study. Approval from Pepperdine's Graduate and Professional School's IRB (Appendix F) was obtained before data collection. An exempt application was submitted to IRB for review and approval prior to recruiting. In addition, the application contained an Informed Consent (Appendix G) form and recruitment form (both attached). Confidentiality was guaranteed to all participants in the study by using aliases for the participants' name and companies. Participants' identities were kept confidential and referred to as female executive leader number 1, 2, 3, etc. The data were stored in a secured database that was only accessible by the researcher. Anonymity was not guaranteed to the participants. However, the identities of the participants were not included in final version of the dissertation. Participants were informed that there were no risk related to involvement in the study.

However there was no external benefit to participants in this study, the internal benefit was being able to provide their experiences and thoughts to new research and to contribute to the IT industry and the field of leadership. Shared thoughts and experiences can help other leaders enhance their leadership skills (Taub & McEwen, 2006). There was not any conflict of interest, deception, or copyright clearance because all data collection instruments were created by the researcher.

Data Collection

Data collection procedures included establishing boundaries for the research study, collecting data through interviews, and creating the steps for recording the data. Data collection involves selecting participants, the number of participants, and the types of data to be collected. This qualitative research design approach allowed for data collection involving unstructured and generally open-ended questions intentionally used to obtain opinions and perspective from the participants (Creswell, 2013). Interviewing is a research tool used to collect data through verbal communication. Interviews can be adjusted to diverse situations, allow in-depth explanation and permit further investigation. Interviews were conducted with 15 women in executive level positions in the IT industry. Semi-structured interviews were conducted for this study. Semi-structured interviews provide reasonable objectivity while granting a comprehensive understanding of the respondents' opinions and explanation of their opinions. Semi-structured interviews offer a desired blend of objectivity and depth, resulting in valuable data (Gall, Borg, & Gall, 1996). This approach offered the flexibility to inquire further into each participant's responses to pursue additional issues pertaining to the study.

Names and phone numbers of the female executives in IT who participated in the study were obtained from the National Diversity Council, WITI-Los Angeles, and the Anita Borg Institute. Initial contact with the female executives in the IT industry was scheduled via email or over the telephone, at which time interview meetings were scheduled. The selection of the participants was based on their willingness to assist with the study. The participants were assured that their comments would not be credited to them or their companies and that the information they provided would be kept strictly confidential. Once the participants agreed to participate in the study they were sent a copy of the Informed Consent form.

A confirmation email for the interview appointment was sent to each participant. The participants were provided a copy of the interview questions 2 weeks before the scheduled interview. In addition, the email thanked the participants for agreeing to participate in study, indicating how the results would be used and that the information from the interview would be kept confidential. Prior to the interview, the participants had the opportunity to examine the interview questions. Before starting each interview, the participant was asked for her approval to audio record the interview. All participants gave their approval, extensive notes were taking and the interviews were recorded. On average the interview lasted about 45-60 minutes. Each recorded interview was written out verbatim. At the end of each interview, participants received an email thanking them for their contribution to the study. A detailed in-person interview was the chosen method for this study because an interview permitted for greater depth of understanding of the participant's experiences; allowed probing for additional data, which made it possible to

establish meaning; and also offered a means of examining information from the

interviewees (Isaac & Michael, 1997).

Interview Techniques

The three types of interviews are: full, unstructured, and semi-unstructured. Full

interviews include detailed questions and the response categories are unlimited.

Structured interviews are appropriate when the researcher seeks to obtain consistency.

Unstructured interviews include questions that seek to obtain reliable and comparable

data. Unstructured interviews should be used when research wants to summarize the

data. This study used semi-structured interviews. Semi-structured interviews involved a

set of open-ended questions that included in-depth and rich responses (Baumbusch,

2010). Semi-structured interviews were the most effective because it permitted diverse

perspectives through open-ended questions. Barriball and While (1994) semi-structured

interviews are applicable for examining the thoughts of respondents regarding a

complex issue. The process for semi-structured interviews involves establishing

interview protocol, conducting the interview, and analyzing the data (Rubin & Rubin,

2005).

Techniques such as paraphrasing should be used when clarifying interviewee

responses (Evans, 2009). The researcher used active listening by focusing on what the

interviewee was saying to gain a mutual understanding. The researcher's responses

were limited to brief answers such as, "Interesting," indicating that the participant's

response was understood. Upon completion of the interview, the participant was

informed that she would receive a copy of the interview responses to review for

accuracy and was later thanked for her time. The participant was asked if she could be

contacted for clarifying questions, if needed. Approximately 1 week after the interview, a copy of the transcribed interview responses was sent to the participants to review for accuracy. The participants were allowed to correct, clarify, and verify the information they provided during the interview.

Interview Protocol

The most common practice in a qualitative study is gathering data through interviews (Burnard, 2005; Nunkoosing, 2005). This section provides an overview of the interview protocol for this study. The protocol was examined by the preliminary panel, and reviewed and approved by the dissertation committee. The interview protocol was planned for a specific one-time usage. Therefore, determining reliability of the data collection process was not required.

Prior to the interview, participants were sent an email to confirm the interview meeting. On the day of the face-to-face interview, the researcher arrived at the meeting site approximately 20 minutes before the start of the interview. Supplies for the interview included two audio recorders, one writing pad, and two blue pens. Before starting the interview, the participant was thanked for participating in the study. The interviewee then answered opening questions. The interviewee was asked how she was doing and if she had any questions before the interview started. The interviewee was asked if she read, understood, and agreed to the informed consent form and accepted the terms. The interviewee acknowledged the benefits and/or risks that she may have experienced as a result of involvement in this study. The electronic informed consent forms were secured by printing and storing them in a locked desk, to which no outside individual was allowed access, to ensure confidentiality.

The research provided participants with instructions to answer interview questions truthfully. The participants were informed that the interview was semi-structured and follow-up questions might be asked to gain additional clarity and depth in their responses. Open-ended and unstructured interview seeks to collect data through discussion in whatever direction seems the most appropriate based on what transpires from the discussion or observation (Patton, 2002). It was emphasized that there was no time limit for the interview, although the interview was estimated to take approximately 60 minutes to complete. Participants were informed that they were participating in a qualitative research study and their responses would be used to collect data for a doctoral dissertation focusing on leadership best practices for female executives in the IT industry. Furthermore, this information would be used to help aspiring female executives advance to executive-level positions in the IT industry.

Data were collected from participants over a 1-month time period using one qualitative instrument. The data collection instrument was a set of 8 open-ended interview questions that were used to answer the dissertation research questions. The data collection instrument was created to gather data related specifically to the IT industry and the advancement of women in the IT industry. The participants' responses helped identify characteristics women must possess in order to advance successfully to executive-level positions in the IT industry.

The interview instrument was developed due to the response from the dissertation committee and peer review panel. The feedback is discussed further in the Validity section. The data collection for this study focused on the implementation of

leadership skills in regard to women advancing to executive-level positions in the IT industry.

Interview questions. The following interview questions were asked to address this study's research questions:

- IQ1: What practices enabled you to obtain your executive-level position in the IT industry?
- IQ2: What do you believe are the top factors that contributed most to your career success in the IT industry?
- IQ3: What is unique about the culture in the IT industry that made it challenging for you to obtain your current executive-level position?
- IQ4: What are some of the most difficult challenges you faced personally or professionally along your journey in the IT industry, and how did you overcome these challenges?
- IQ5: How do female executives in the IT industry measure leadership success?
- IQ6: How do these measurements fit into a male-dominated industry?
- IQ7: What advice or recommendation would you provide women seeking executive-level positions in the IT industry?
- IQ8: Is there anything else you would like to share about your IT experience that your think would be relevant to this study?

Relationship between research and interview questions. Interview Questions 1, 2, and 3 correspond with Research Question 1. The interview questions were used to

understand the participants' professional experiences and career history in the IT

industry from the beginning to present. The interview questions are stated in Table 2.

Table 2

Research Questions and Corresponding Interview Questions

Research Questions	Corresponding Interview Questions
RQ 1: What best practices and strategies are used by female executives in the male-dominated information technology industry?	IQ1: What practices enabled you to obtain your executive-level position in the IT industry? IQ2: What do you believe are the factors that contributed most to your career success in the IT industry? IQ3: What education, training and/or personal qualities do you have that has supported your rise to executive leadership in IT?
RQ 2: What challenges are faced by female executives in the male-dominated information technology industry?	IQ4: What is unique about the culture in the IT industry that made it challenging for you to obtain your current executive-level position? IQ5: What are some of the most difficult challenges you faced personally or professionally along your journey in the IT industry, and how did you overcome these challenges?
RQ 3: How do female executives measure their leadership success?	IQ6: How do you define success for yourself? IQ7: How do you measure that success?
RQ 4: What recommendations would female executives make for aspiring female executives in the male-dominated information technology industry?	IQ8: What advice or recommendation would you provide women seeking executive-level positions in the IT industry? IQ9: Is there anything else you would like to share about your IT experience that you think would be relevant to this study?

Interview Questions 4 and 5 correspond with Research Question 2. These

interview questions were used to understand the challenges the participants

experienced when advancing to executive-level positions. The interview questions are stated in Table 2.

Interview Questions 6 and 7 correspond with Research Question 3. These interview questions were used to understand how participants measure their success in executive-level positions in the IT industry. The interview questions are stated in Table 2.

Interview Questions 8 and 9 correspond with Research Question 4. These interview questions were used to understand what recommendations participants would offer to aspiring female executives in the IT industry. The interview questions are stated in Table 2.

Reliability and validity of the study. Validity means that an instrument must evaluate what it was intended to evaluate (Gray, 2013). Reliability means the instrument is consistent (Creswell, 2013). Validity and reliability of the instrument were evaluated to guarantee that the questions on the protocol adequately addressed the research questions. Validity was determined by: (a) prima facie validity, (b) peer review validity, and (c) expert review. The following steps were used in the validation process.

Step one: Prima facie validity. After analyzing the literature, 9 interview questions were designed that corresponded with the research questions. Table 2 represents relationship between research questions and corresponding interview questions that demonstrate prima facie validity. These interview question were presumed to produce useful and rich responses to answer the respective research questions.

Step two: Peer review validity. To further establish validity, a peer review was used to challenge any assumptions and biases of the researcher, and to ask questions about methods pertaining to the research study and interpretations of the data collection. The peer review process helped further establish validity (Creswell, 2013). The research questions and corresponding interview questions are stated in Table 2.

The table was evaluated by a preliminary panel of peer reviewers composed of researchers with expertise and experience in qualitative research methods. The panel was asked to review the corresponding interview questions and research questions in Table 2 and assess if the interview questions addressed the research questions adequately.

The preliminary panel provided recommendation for edits to the interview questions to assess if the interview questions addressed the research questions adequately using the Research Questions Review Form (See Appendix H). Thus, the clear questions would allow the participants to provide concise and applicable responses applicable to the research questions. The final review to assess if the interview questions addressed the research questions was conducted by a panel of experts. Table 2 shows the interview question proposed to answer the study's research questions. These questions were presented to two panels to evaluate and provide feedback on the relevance of the interview questions in answering the research questions.

Step three: Expert review validity. The results the initial review panel's work were then presented to the dissertation review committee. The dissertation committee provided their expertise on excellence and innovative practices in the realm of the IT

industry and organizational leadership. Their expertise enabled the researcher to examine all of the significant aspects of the study (Creswell & Miller, 2000). After reviewing interview questions with the dissertation committee, several changes were recommended. The final list of interview questions approved are as follows:

- IQ1: What practices enabled you to obtain your executive-level position in the IT industry?
- IQ2: What do you believe are the factors that contributed most to your career success in the IT industry?
- IQ3: What education, training and/or personal qualities do you have that has supported your rise to executive leadership in IT?
- IQ4: What is unique about the culture in the IT industry that made it challenging for you to obtain your current executive-level position?
- IQ5: What are some of the most difficult challenges you faced personally or professionally along your journey in the IT industry, and how did you overcome these challenges?
- IQ6: How do you define success for yourself?
- IQ7: How do you measure that success?
- IQ8: What advice or recommendation would you provide women seeking executive-level positions in the IT industry?
- IQ9: Is there anything else you would like to share about your IT experience that you think would be relevant to this study?

Statement of Personal Bias

This research study was pursued based on the researcher's desire to increase gender diversity in leadership in the IT industry. The lack of information regarding best practices and strategies for women advancing to executive-level positions in the IT industry was of interest as a problem that could be investigated.

Personal biases should always be highlighted in a research study (Creswell & Miller, 2000). Bracketing, also called epoche, is a technique that researchers can utilize to alleviate personal biases (Tufford & Newman, 2012). Bracketing can be applied to shield an individual from studying what may be psychologically stimulating material. In addition, bracketing can help attain s richer degree of thinking through the process of qualitative research. Bracketing can be accomplished by:

1. Writing memos during the data collection process (Cutcliffe, 2003)

2. Engaging in interviews with external sources to reveal biases (Rolls & Relf, 2006); and

3. Writing a reflexive journal before defining research questions, which can reveal biases (Ahern, 1999).

Bracketing techniques used in this study included writing memos during the data collection process and engaging with outside sources. These techniques were used in the interview protocol section and are discussed further in the data analysis section.

Data Analysis

The interview data were analyzed and transcribed by using memos, data entry and storage, and coding. Memos were written when thoughts evolved from personal observations of the study subjects and the interview questions. Data collected from the

interview process, memos, and observation notes were transcribed into a word-processing document. The transcribed data were then segmented into codes.

The three types of coding are: structured, semi-structured, and unstructured. Structured coding involves a specific set of questions in a predetermined order with a limited number of response categories. The data elicited by the participant quite tightly in structured coding. The responses are coded according to a coding scheme that was established according to the research question. Structured coding would be appropriated when the researcher asks the same set of questions for consistency. In semi-structured coding involves a set of instructions for the research to provide comparable, reliable qualitative data. Semi-structured coding is applicable when the researcher plans to summarize the topics covered. Unstructured coding begins with coding open-ended questions about a person's experience. Unstructured coding is applicable when developing a deep understanding on a topic of interest necessary for developing meaning (Stuckey, 2013). This study used unstructured coding to obtain an in-depth understanding of experiences of female executives in the IT industry

Coding. An inductive coding procedure was applied that involved categorizing, coding, interim analysis, and interpreting data to give an explanation for the problem. The inductive approach is apparent in numerous forms of qualitative data analysis (Strauss & Cobin, 1990). The reasons for using an inductive approach are to:

- Summarize extensive and varied raw text data;
- Create explicit correlation between findings and the research goals obtained from data; and

- Invent a model of theory about the underlying framework of themes that are visible in the raw data. (D. Thomas, 2003, p. 5)

D. Thomas (2003) outlined the following procedures needed for inductive analysis:

1. Organizing data files
2. Determining categories and themes
3. Overlapping uncoded and coded text
4. Closing reading text
5. Refining and revising categories and themes

From the inductive analysis, several themes emerged from the interviewees' responses. During the process of coding the data, a master list was created of all the codes that were used for this study. This information helped develop answers to the research questions.

Inter-rater Reliability and Validity

In qualitative research the strength and richness if findings are determined by interrater or intercoder validity process (Creswell, 2013). Reliability and validity of the findings from the research study were obtained by first identifying two doctoral students with expertise in qualitative research and the coding process. Next, to establish inter-rater reliability and increase the external validity of the results, the following steps were used for the process of data analysis.

1. The researcher reviewed and coded three interviews,
2. The researcher discussed the results with two peer reviewers regarding coding results

3. An expert review was conducted if there was no consensus on coding results, and

4. Using the agreed upon coding schemes the researcher coded the remaining 15 interviews.

Representing, visualizing. When data analysis is finalized, consensus is obtained between researcher and peer-reviewers. The next step was to move to report the findings. The summary of the findings includes charts that report and organize the numbers of interviewee who are a part of a general theme.

Summary

This chapter provided an overview of the research design and methodology of the study. The research questions were reaffirmed, followed by a discussion of qualitative research. The chapter also discussed the use of phenomenology design. The population was later defined, and the inclusion and exclusion criteria were presented. Human subjects' considerations were addressed, including a review of the IRB protocol. Data collection in the form of a semi-structured thorough interview was examined, including a summary of the interview process and protocol. The data analysis procedures were discussed. The process used to analyze the data will be discussed thoroughly in the next chapter.

Chapter 4: Findings

The advancement of women in the IT industry has been a challenge. Overcoming this challenge will result in a successful model for leadership best practices and strategies that will help aspiring female executives in the IT industry. The purpose of this phenomenological study was to develop an understanding of leadership best practices employed by female executives in the IT industry. In pursuit of achieving this understanding, the following research questions were asked:

1. What leadership best practices and strategies do female executives use in the IT industry?

2. What challenges do female executives face in the IT industry?

3. How do female executives measure their success in the IT industry?

4. What recommendations would female executives make to aspiring female executives in the IT industry?

These four research questions were answered by asking 17 participants nine interview questions with the aim of learning what tools female executive leaders utilize to advance in the IT industry. In addition, the participants' perceptions of the IT industry were sought. Research participants identified leadership best practices and strategies, then frequent themes were identified in the data. These themes were then explained and discussed in detail thoroughly in this chapter. This study took a comprehensive look at the leadership best practices of female executives in the IT industry to identify strategies to help guide aspiring female executives in the IT industry.

Participants

Participants were selected through purposive sampling approach associated with

qualitative research. According to Creswell (2013), purposive sampling has three

important emphasis. The first concentration is that all participants in the study must all

have experienced the same phenomenon and have accounts that relate to the study.

Purposeful sampling is the approach by which the participants are selected because

they can relate to the phenomenon and research problem in the study. The participants

agreed to participate in the study with the understanding that confidentiality would be

maintained. Each participant was forwarded via email the Informed Consent Form and a

copy of the interview questions prior to the interview. The sample pool included 17

participants who have held executive level (Director and above) positions in the IT

industry, including top IT companies and Fortune 500 companies. Eight participants

(47%) worked for IT-computer software companies. Three participants (17%) worked for

IT-services companies. Two participants worked for information communication

technology companies (2%). Two participants (2%) worked for an IT-social networking

company. One participant (6%) worked for an IT-travel company. One participant (6%)

worked for an IT-E-commerce company (see Figure 2).
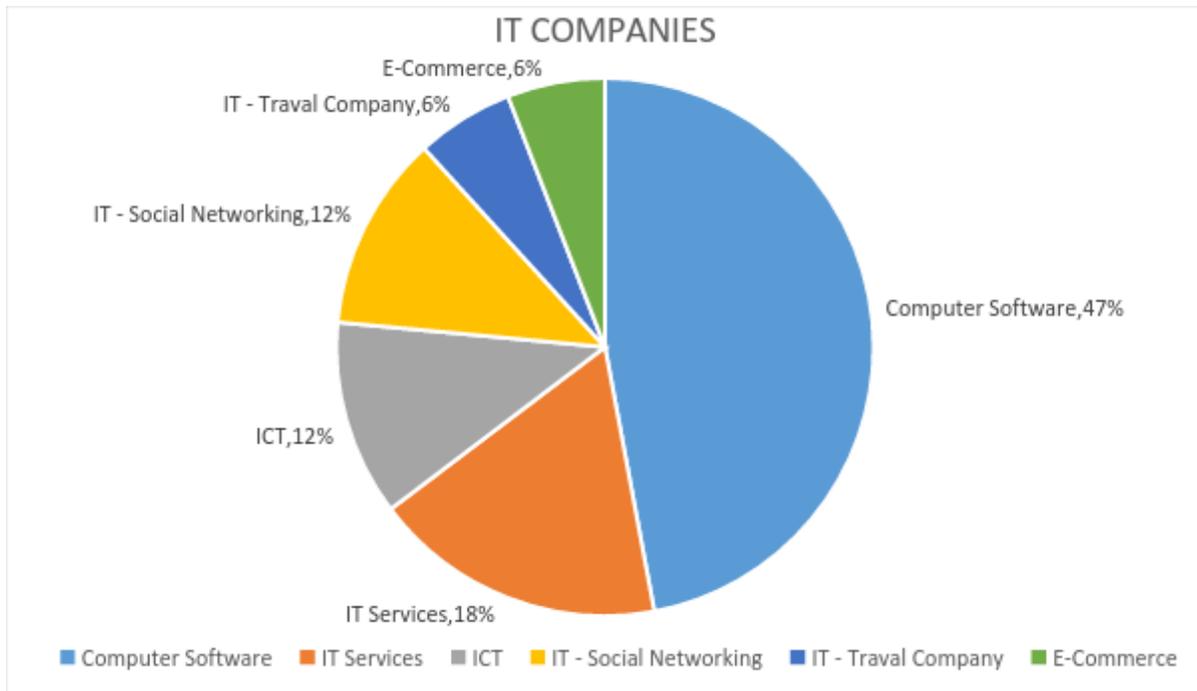
Figure 2. Types of IT companies*.*

The 17 participants consisted of female executives in the IT industry who held executive-level positions for various numbers of years. Eight female executives held an executive level position between 5 and 15 years. Eight female executives held an executive level position between to 2 to 4 years. One female executive held an executive level position for less than 2 years (see Figure 3).

Figure 3. Number of years in executive position*.*

The participants in the study included female executives in the IT industry who held the leadership position title of Director and above (see Figure 4). The leadership position titles were C-level, Executive Board Member, President, Vice President, Senior Director, and Director. The percentages of female executive in the various titles consisted of 29% Director, 24% C-level, 29% Vice President, 6% President, 6% Senior Director, and 6% Executive Board Member (see Figure 4).
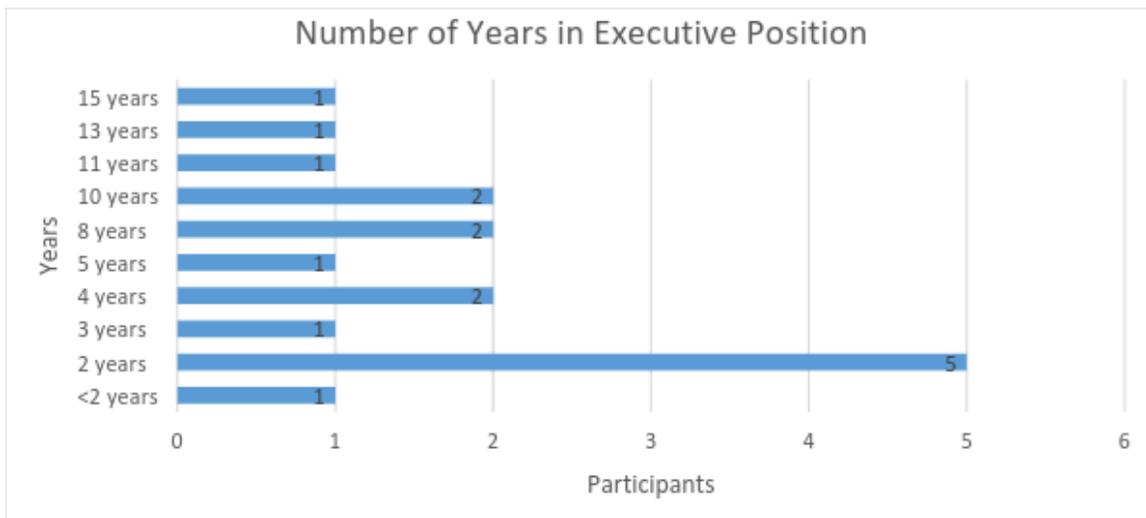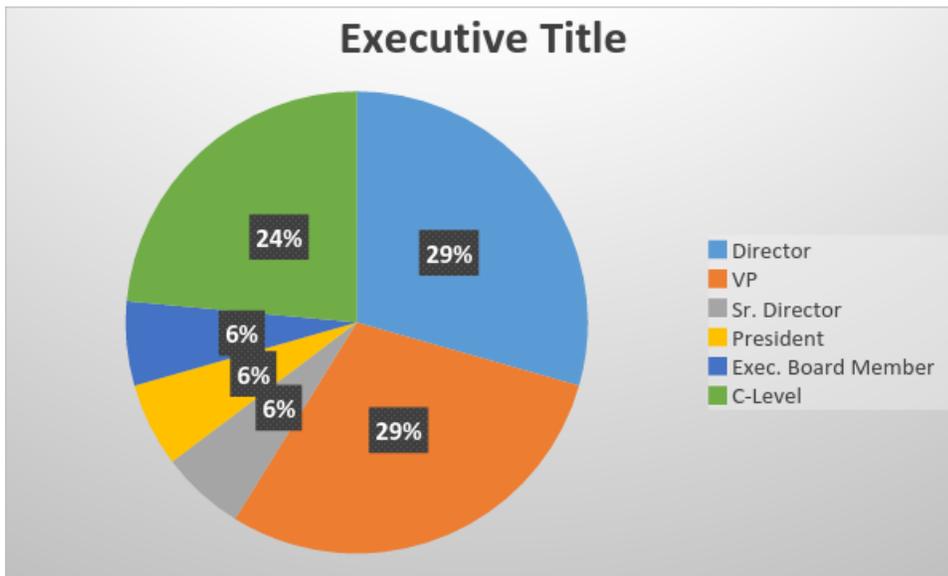

Figure 4. Executive title*.*

The participants in the study included female executives in the IT industry who held various types of educational degrees (see Figure 5). The types of educational degrees included JDs, doctorates, MBAs, master's degrees in computer science, and psychology, and bachelor's degrees in management, computer science, arts, and English/communications. One female executive obtained a doctorate degree. One female executive obtained a JD degree. Nine female executives obtained a MBA degree. Two female executives obtained a master's degree other than an MBA. Four female executives obtained a bachelor's degree (see Figure 5).
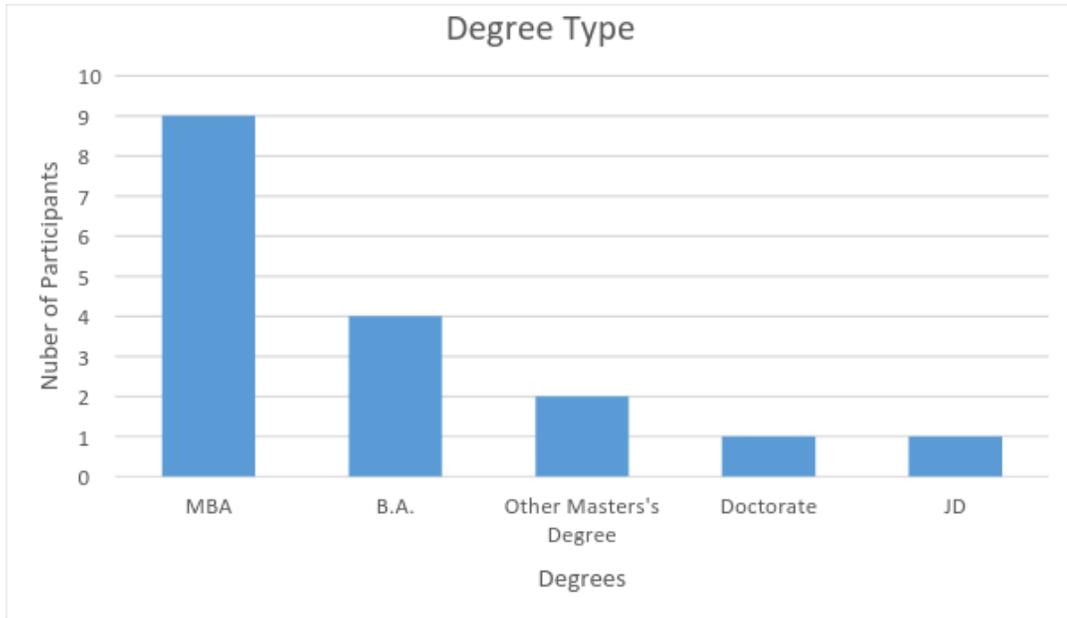
Figure 5. Degree type.

The participants in the study included female executives in the IT industry from diverse ethnicities (see Figure 6). The ethnic backgrounds of the female executives were White (thirteen), Black (three), and Asian (one).

Figure 6. Ethnic background.

All participants had held an executive-level position in the IT industry. Although 15 subjects were initially identified as meeting the criteria for inclusion, numerous

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responses were received from female executive in the IT who wanted to participate in the research study, which resulted in 1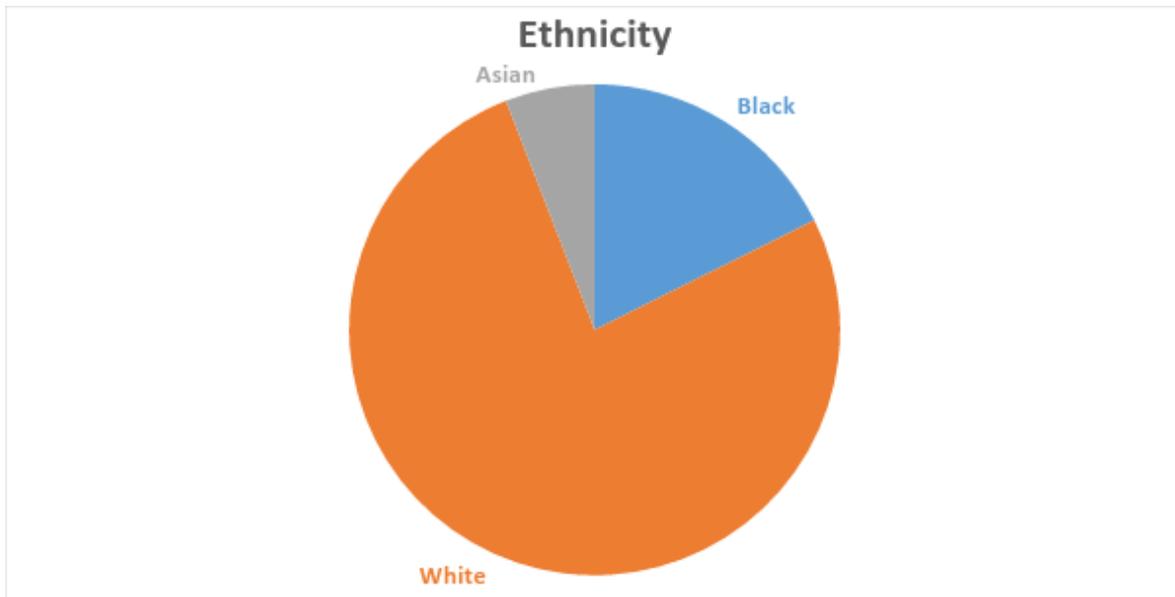7 participants in the research study. In addition, the study included two additional female executives in the study to obtain a more diverse group of participants, gain a deeper insight on the culture in the IT industry, and acquire richer data. All participants were told that their names and companies would remain anonymous. Furthermore, changes were made to the inclusion criteria, which included the following:

- Instead of the inclusion criteria including only female executives with more than 2 years' of leadership experience, a change was made to include one female executives with less than 2 years' of leadership experience
- The exclusion criteria was changed to include one CEO of a IT startup company

Data Collection

Data collection commenced on January 28, 2017, and concluded on March 2, 2017. The proposed steps taken for the sampling frame did not go according to plan. Due to possible member privacy issues the researcher did not obtain a list of female executives from the National Diversity Council or receive site permission from the Anita Borg Institute of Women in Technology or WITI. However, the researcher was able to create a master list from the information on Anita Borg Institute of Women in Technology group and WITI group LinkedIn member page. The collection period involved initial participant contact and the subsequent interviews. Each participant was sent an introductory memo inviting her to participate in the research study via email. After the female executive agreed to participate in the study a second memo was sent

to schedule the interview. Due to scheduling and travelling conflicts, participants were given three methods for interviewing: in-person, conference call, or videoconference. A list of dates of the participants' interviews can be seen in Table 3.

Table 3

Dates of Participant Interviews

Participant	Interview Date
P1	1/28/2017
P2	2/3/2017
P3	2/3/2017
P4	2/6/2017
P5	2/8/2017
P6	2/10/2017
P7	2/14/2017
P8	2/15/2017
P9	2/20/2017
P10	2/21/2017
P11	2/22/2017
P12	2/22/2017
P13	2/23/2017
P14	2/27/2017
P15	2/27/2017
P16	2/28/2017
P17	3/2/2017

A copy of the interview protocol was sent to the participants to review 1 week prior to the interview. On the day of the interview, participants were asked if they understood the informed consent form and if they had any questions about the form and the research study before the interview started. A Sony digital recorder was used to record the interviews, during which the following questions were asked:

- IQ1: What practices enabled you to obtain your executive-level position in the IT industry?

- IQ2: What do you believe are the factors that contributed most to your career success in the IT industry?

- IQ3: What education, training and/or personal qualities do you have that has supported your rise to executive leadership in IT?

- IQ4: What is unique about the culture in the IT industry that made it challenging for you to obtain your current executive-level position?

- IQ5: What are some of the most difficult challenges you faced personally or professionally along your journey in the IT industry, and how did you overcome these challenges?

- IQ6: How do you define success for yourself?

- IQ7: How do you measure that success?

- IQ8: What advice or recommendation would you provide women seeking executive-level positions in the IT industry?

- IQ9: Is there anything else you would like to share about your IT experience that you think would be relevant to this study?

There were minimal problems during the interview process. The issues that occurred were due to delays in scheduling interviews and scheduling conflicts. This issue was resolved by providing participants with follow-up email and listing dates/times for possible interviews. Prior to each interview, the researcher answered the participants' questions and concerns about the interview and explained how anonymity would be assured.

Data Analysis

Qualitative research explains a phenomenon by utilizing a theoretical framework to define a problem (Creswell, 2013). These assumptions are based on each individual's real world experiences. A qualitative design was used for this study collect data based on participants' real world experiences. In qualitative research, clarity is achieved when data helps to understand participants' experiences and identifies similarities (Aldiabat & Le Navenec, 2011). Similarities refer to related elements that connect sets of data.

All interview recordings were transcribed, removing the participants' names and companies. After the recordings were transcribed they were destroyed. Each transcript was examined thoroughly to identify key themes. Themes were then coded based on the previously described three-step interrater reliability process:

1. Specific ideas and categories were identified from the data, which formed the basic unit of analysis. Headings were created to separate the data properly. Elements were coded and common themes were combined and bucketed.

2. A panel of doctoral students from Pepperdine University educated in qualitative research reviewed the coding results for validity. The panel began with the review of the coding process and recommended that themes Organizational/Industry Knowledge for IQ1 and IQ2 be separated into two separate themes. In addition, the panel recommended that the theme of College Degree, represent all degrees for IQ3. Additionally, the panel recommended that one theme for diversity, Diversity Awareness, be included for IQ9. The recommended changes were made, and thus the third step was

deemed unnecessary. Charts were created based on themes in each interview question, and displayed the frequency with which they appeared.

Data Display

The data were arranged based on the research questions and presented with each corresponding interview question(s). As the data were examined, similarities emerged and a sequence of similar themes appeared. The data were expressed and redacted, as a result only bracketed by commonalities. These themes are presented by interview questions and followed by charts displaying the frequency of each common theme. Although there are commonalities in themes between interview questions, they are formed only on the data collected during the interview, hence making them applicable only to that particular question. The participants in the study were identified only by reference number (i.e., Participant 1, Participant 2, etc.) to ensure anonymity.

The following best practices used and challenges experienced were derived from the data collected during the semi-structured one-on-one interviews that took place as part of this study. The best practices and challenges discussed were utilized by female executives in the IT industry in order to create a roadmap for aspiring female executives in the IT industry. The data collected were coded, placed into thematic sections, and analyzed into key findings to address the four research questions.

Research question 1. Research question 1 sought to determine what best practices and strategies are used by female executives in the male-dominated IT industry that helped them advance to executive-level positions. Responses to the following questions formed a series of themes related to this research question that were analyzed separately and collectively.

- IQ1. What practices enabled you to obtain your executive-level position in the IT industry?

- IQ2. What do you believe are the factors that contributed most to your career success in the IT industry?

- IQ3. What education, training, and/or personal qualities do you have that has supported your rise to executive leadership in IT?

Interview question 1. This question asked, What practices enabled you to obtain your executive-level position in the IT industry? Responses to this question yielded eight common themes: leadership qualities, exceeding expectations, mentors and sponsors, organizational knowledge, industry knowledge, career goals, networking, and self-advocacy (see Figure 7).

Interview Question 1 - Coding Results
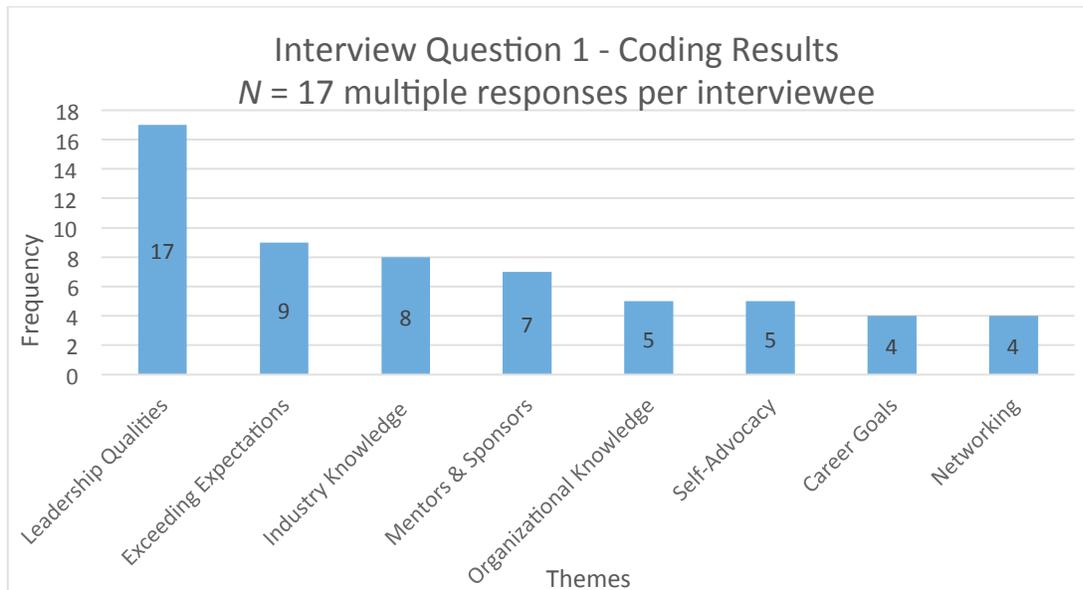*N* = 17 multiple responses per interviewee

Figure 7. IQ1: Effective practices for advancement to executive-level positions.

Leadership qualities. This research revealed a common theme of practices that contributed to the advancement of female executives in the IT industry. The most common theme was possessing leadership qualities, such as good communication,

risk-taking, conflict management, an entrepreneurial mindset, and open-mindedness. This element was common among 12 female executives regarding to effective practices that contributed to their advancement to executive-level positions. The 12 female executives stated that exhibiting leadership qualities was essential to their advancement to executive-level positions. Participant 13 stated that "executive presence is critical to the advancement of women in executive-level position in the IT industry, people must see you as a leader" (P13, personal communication, February 23, 2017). Being bold, being fearless, taking on challenging projects, and working in ambiguous situations were leadership qualities that female executives possessed that helped them advance into executive-level positions.

Exceeding expectations. Exceeding expectations was the second theme related to practices that contributed to the advancement of female executives in the IT industry. Six female executives stated that exceeding expectations in every role contributed to their advancement in the IT industry. Participant 8 stated that "aspiring to take on more responsibility and have an impact in the organization is critical to advancement in the IT industry" (P8, personal communication, February 15, 2017). Delivering value in each role and welcoming feedback and criticism helped the female executives exceed expectations.

Industry knowledge. Industry knowledge was the third common theme regarding practices that contributed to the advancement of female executives in the IT industry. Seven female executives stated that industry knowledge was important to their advancement in the IT industry. Participant 5 stated, "You have to be technically and functionally competent to advance in the IT industry" (P5, personal communication,

February 8, 2017). Continually learning by reading industry articles, conducting research on various topics, and following tech influencers helped these female executives gain industry knowledge.

Mentors/sponsors. Obtaining mentors and/or sponsors was the fourth common theme related to practices that contributed to the advancement of female executives in the IT industry. Five female executives stated that mentors and sponsor helped them advance in the IT industry. Participant 5 stated that "mentors and sponsors are critical to advancement in the IT industry" (P5, personal communication, February 8, 2017). Participant 8 stated, "It's really about who knows you, and what you do, that will help open those doors" (P8, personal communication, February 15, 2017). Having male sponsors and champions at all levels was a key component of mentorship and sponsorship.

Organizational knowledge. Organizational knowledge was the fifth common theme regarding practices that contributed to the advancement of female executives in the IT industry. Five female executives stated that organizational knowledge helped them advance in the IT industry. Participant 6 stated, "The ability to navigate complex organization is key to advancement in the IT industry" (P6, personal communication, February 10, 2017). Understanding the political landscape and having a broad point of view helped get the right buy-in and support for female executives to advance into executive-level positions.

Career goals. Setting goals was the sixth common theme addressing practices that contributed to the advancement of female executives in the IT industry. Four female executives stated that having career goals helped them advance in the IT industry.

Participant 8 stated, "You must build a path for your career before you can advance into leadership" (P8, personal communication, February 20, 2017). Participant 9 stated that "setting career and team goals is important for advancement in the IT industry" (P9, personal communication, February 20, 2017). Setting and tracking the progress of career goals was an important practice that helped the female executives advance into executive-level positions.

Networking. Networking was the seventh common theme that addressed practices that contributed to the advancement of female executives in the IT industry. Four female executives stated that networking helped them advance in the IT industry. Participant 2 stated, "Being around high achieving peers and colleagues helped me advance in my career" (P2, personal communication, February 3, 2017). Participant 8 stated, "Establishing and maintaining rapport with people that can help you is important to advancement in the IT industry" (P8, personal communication, February 15, 2017). Networking can include becoming a member of technology professional association or on a social networking group, such as LinkedIn.

Self-advocacy. Self-advocacy was the eighth common theme related to practices that contributed to the advancement of female executives in the IT industry. Four female executives stated that self-advocacy helped them advance in the IT industry. Participant 5 stated, "Advocating for myself was important to [my] advancement into leadership" (P5, personal communication, February 6, 2017). Participant 17 stated, "The ability to sell my ideas contributed to my advancement" (P17, personal communication, March 2, 2017). Telling people what you want and that you are interested in a leadership role is

important to being considered for leadership positions, projects, and opportunities that could lead to leadership positions.

Interview question 1 summary. Possessing good leadership qualities was identified as the most important practice that helped female executives advance to executive-level positions in the IT industry. Most female executives believed that having good leadership qualities prepared them for leadership in the IT industry. In addition, exceeding expectation on projects was a practice that set them apart from others, which allowed management to perceive them as good leaders. Obtaining industry knowledge and staying current in the industry was another practice that helped female executives advance into leadership positions, as did having mentors and sponsors. Most importantly, having male mentors and male sponsors was identified as an important practice that helped female executives advance into leadership positions. Female executives identified possessing organizational knowledge, such as understanding the political environment and knowing who has the power, as a critical component that helped them advance into executive-level positions. Setting and tracking career goals, and having a career plan was identified as a key practice that helped female executives advance into executive-level positions. Networking and participating in technology professional associations and groups were identified as another critical practice that helped female executives advance into leadership positions. Furthermore, self-advocacy and letting management know that one is interested in leadership was an important practice identified by the female executives that helped them advance to executive-level positions.

Interview question 2. This interview question asked, What do you believe are the factors that contributed most to your career success in the IT industry? Responses to this question yielded eight common themes: exceeding expectations, leadership soft skills, meaningful relationships, organization leadership, reputation, industry knowledge, confidence, and organizational knowledge (see Figure 8).
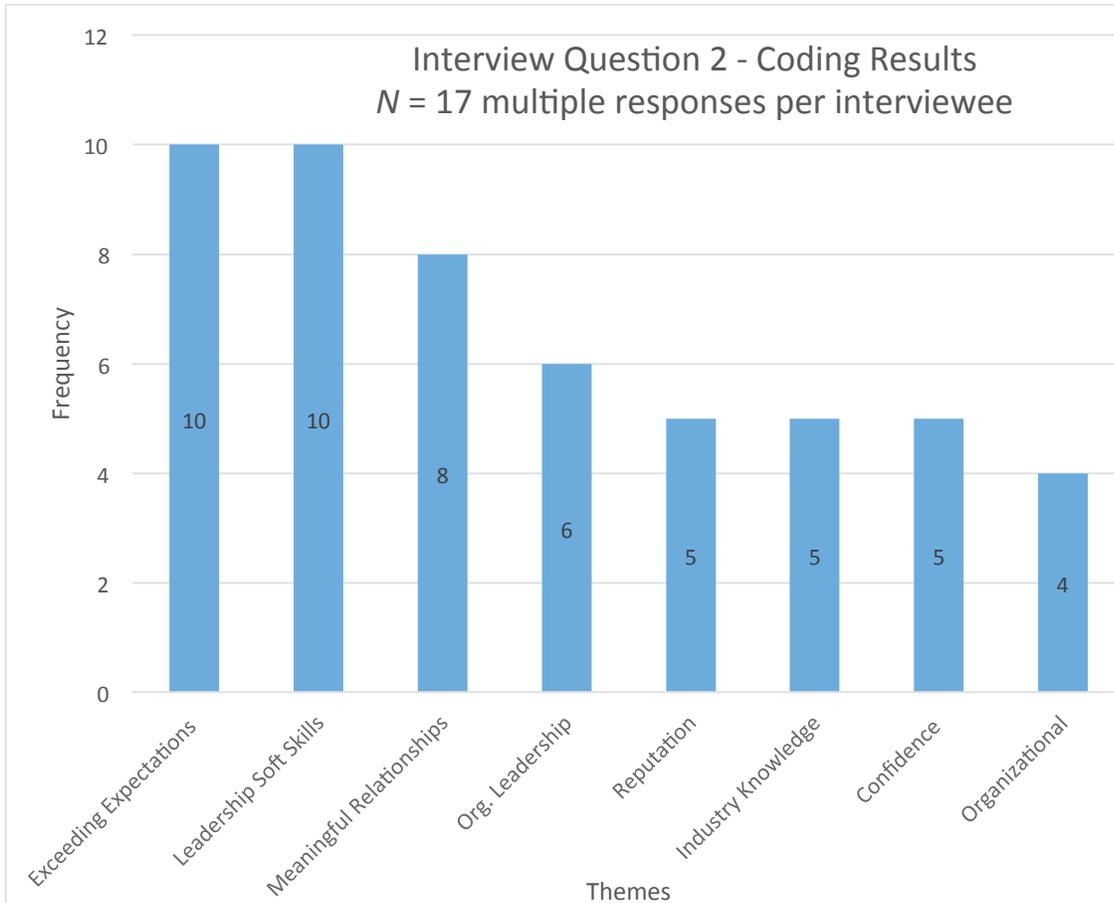
Figure 8. IQ2: Factors contributing to advancement to executive-level positions.

Exceeding expectations. This research revealed a common theme of factors that contributed to the advancement of female executives in the IT industry. Exceeding expectations was the first common theme. Seven female executives stated that exceeding expectations contributed to their advancement in the IT industry. Participant 3 stated, "Doing above and beyond what was expected played a factor in my

advancement in the IT industry" (P3, personal communication, February 3, 2017).

Participant 10 stated, "I always said yes to a project and if I did not know something I

would search for the answer" (P10, personal communication, February 21, 2017).

Producing good work products, being able to execute strategy, taking on additional

responsibilities, and taking on projects outside of their comfort zone were examples of

how female executives went above and beyond on projects.

　　　Leadership soft skills. Developing leadership soft skills was the second common

theme related to factors that contributed the advancement of female executives in the IT

industry. Seven female executives stated that developing leadership soft skills

contributed to their advancement in the IT industry. Participant 7 stated, "Technical skills

are good but a good leader must develop leadership skills to succeed" (P7, personal

communication, February 14, 2017). The ability to motivate people, finding solutions to

problems, being optimistic, and risk-taking were all soft skills that female executives

mention as contributing to their success as a leader.

　　　Meaningful relationships. Meaningful relationships was the third common theme

related to factors that contributed the advancement of female executives in the IT

industry. The seven female executives stated that establishing meaningful relationship

contributed to their advancement in the IT industry. Participant 9 stated, "Deliberate

connections was how I got my next job" (P9, personal communication, February 20,

2017). Participant 17 emphasized the importance of one's "ability to build productive

relationships and investing in those relationships" (P17, personal communication, March

2, 2017). Cultivating meaningful relationships was an important factor that contributed to

the female executives' career success in the IT industry.

Organizational leadership. Organizational leadership was the fourth common theme related to factors that contributed the advancement of female executives in the IT industry. Four female executives stated that support from leadership within the organization contributed to their advancement in the IT industry. Participant 6 stated that "good leadership in an organization will help everyone thrive and succeed" (P6, personal communication, February 10, 2017). Supportive management, creating an environment where one feels safe with one's views, and leadership coaching through challenging situations are examples of how members of leadership can support the advancement of women in the IT industry. Having supportive leaders in the organization was an important factor that contributed to the female executives' career success in the IT industry.

Reputation. Reputation was the fifth common theme related to factors that contributed the advancement of female executives in the IT industry. Four female executives stated that establishing a good reputation contributed to their advancement in the IT industry. Participant 1 stated, "Acting with integrity is what separated me from the rest" (P1, personal communication, January 28, 2017). Building trust, being honest, and acting with integrity were examples of how the female executives established a good reputation. Establishing a good reputation was an important factor that contributed to the female executives' career success in the IT industry.

Industry knowledge. Industry knowledge was the sixth common theme related to factors that contributed the advancement of female executives in the IT industry. Four female executives stated having industry knowledge contributed to their advancement in the IT industry. Participant 15 stated that "being an expert in the industry gives you

credibility" (P15, personal communication, February 27, 2017). Reading industry articles and books helps women stay informed about the industry and make better decisions to meet business needs. Acquiring industry knowledge was an important factor that contributed to the female executives' career success in the IT industry.

Confidence. Confidence was the seventh common theme related to factors that contributed the advancement of female executives in the IT industry. Five female executives stated having confidence contributed to the advancement of female executives in the IT industry. Participant 3 stated, "I was comfortable and accepted that I was the only woman in the room" (P3, personal communication, February 3, 2017). Confidence in one's skillset, knowing that one's opinions matter, and recognizing that one adds value to the organization were important factors that contributed to the female executives' career success in the IT industry.

Organizational knowledge. Organizational knowledge was the eighth common theme related to factors that contributed the advancement of female executives in the IT industry. Four female executives stated that having organizational knowledge contributed to advancement of female executives in the IT industry. Participant 5 stated, "Understanding how and what makes your organization successful is key to your career success" (P5, personal communication, February 8, 2017). Being aware of how technology drives business values is important to organizational success and career success. Attaining organizational knowledge was an important factor that contributed to the female executives' career success in the IT industry.

Interview question 2 summary. As in IQ1, exceeding expectations was an important factor that female executives identified as contributing to their career success.

Producing good work products, being able to execute strategy, taking on additional responsibilities, and taking on projects outside of their comfort zone were examples of how female executives exceeded expectations. Developing leadership soft skills was also important factor that female executives identified as having helped them advance to executive-level positions. Female executives identified the ability to cultivate meaningful relationship and developing support as an important factor that contributed to their advancement into leadership positions. In addition, having supportive management in the organization was a critical factor for many of the female executives' advancement into leadership positions. Most importantly, female executives identified establishing a good reputation among management and team members as key factors to their advancement into leadership. As mentioned in the findings related to IQ1, industry knowledge and organizational knowledge were important factors that contributed to the advancement of many of the female executives. Furthermore, female executives identified having self-confidence and confidence in one's team as important factors that contributed to their advancement into executive-level positions.

Interview question 3. This interview question asked, What education, training, and/or personal qualities do you have that has supported your rise to executive leadership in IT? Responses to this question yielded seven common themes: leadership skills, college degree, certification, networking, industry knowledge, leadership training, and organizational knowledge (see Figure 9).
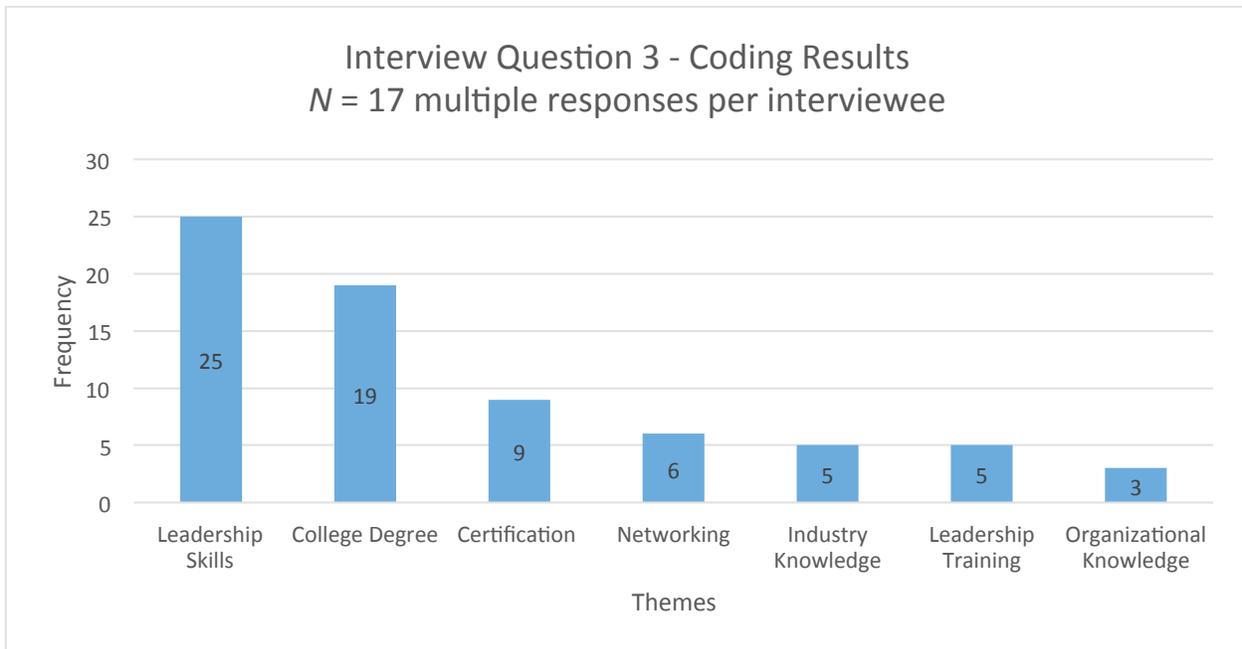
Figure 9. IQ3: Education, training, and personal qualities that supported advancement to executive-level positions.

Leadership skills. Leadership skills was the first common theme related to skills that contributed the advancement of female executives in the IT industry. Thirteen female executives stated that having good leadership skills contributed to their advancement in the IT industry. Participant 14 stated that "having a growth mindset, waiting to achieve more is critical to advancement" (P14, personal communication, February 27, 2017). Participant 5 emphasized the importance of having a "high bandwidth - jointly getting things done and pushing the organization forward" (P5, personal communication, February 8, 2017). Being strategic, having vision, taking ownership of projects, being able to execute strategy, being passionate, being optimistic, and using logic to solve problems are important components for advancement into leadership. Participant 17 described the importance of her "curiosity, seeking to understand. I like to figure out how and why things work and how they can be fixed" (P17, personal communication, March 2, 2017). Exhibiting good leadership skills

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was identified as an important component that supported the female executives' rise to executive leadership in IT.

College degree. Possessing a college degree and advanced degrees was the second common theme related to skills that contributed the advancement of female executives in the IT industry. All 17 female executives stated that having college degree contributed to their advancement in the IT industry. Participant 1 stated, "Having an MBA helps me have a different approach to problem solving" (P1, personal communication, January 28, 2017). Participant 3 stated, "Having a psychology degree help me understand people and the needs of my team" (P3, personal communication, February 3, 2017). Participant 6 stated, "Having a business and economic degree helped understand business needs from a financial standpoint" (P6, personal communication, February 10, 2017). Participant 7 stated, "Having a law degree helps me think analytical and logical when solving problems" (P7, personal communication, February 14, 2017). Participant 8 stated, "Having a computer science degree helps understanding the technical functions of the organization" (P8, personal communication, February 15, 2017). Participant 9 stated, "Having an organizational behavior degree gave me formal tools to pair with instinctive strengths in leadership" (P9, personal communication, February 20, 2017). Diverse disciplines and expertise in business, computer science, leadership, and psychology acquired through a higher education were identified as important components that supported female executives' rise to executive leadership in IT.

Certification. Certification was the third common theme related to skills that contributed the advancement of female executives in the IT industry. Six female

executives stated that having relevant certification contributed to their advancement in the IT industry. Participant 1 stated, "Having a PMP Project Management Professional] certification helped me be successful in managing teams" (P1, personal communication, January 28, 2017). Participant 4 stated, "having a PMP certification, Intelligent Data Operating Layer and Agile certification helped create high-performing teams, helped me have a better understanding of the industry and how to meet the needs of the organization" (P4, personal communication, February 6, 2017). The female executives asserted that certification in project management and processing technology helped them stay relevant in an industry that is constantly changing. Certification was identified as an important component that supported the female executives' rise to executive leadership in IT.

Networking. Networking was the fourth common theme related to skills that contributed the advancement of female executives in the IT industry. Five of the female executives stated that networking contributed to their advancement in the IT industry. Participant 9 stated, "I was an excellent connector of people, ideas and resources, all those elements helped me advance in my career" (P9, personal communication, February 20, 2017). Belonging to professional networking associations, such as the Anita Borg Institute for Women and Technology and WITI, and participating in networking groups inside the organization were examples of how women could network to advance their careers. Networking was identified as an important component that supported the female executives' rise to executive leadership in IT.

Industry knowledge. Industry knowledge was the fifth common theme related to skills that contributed the advancement of female executives in the IT industry. Four of

the female executives stated that industry knowledge contributed to their advancement in the IT industry. Participant 4 stated, "Investing time in industry knowledge helps you stay current and relevant" (P4, personal communication, February 3, 2017). Job experience and continuing to be open to learning something new were examples of knowing and understanding the industry. Attaining industry knowledge was identified as an important component that supported the female executives' rise to executive leadership in IT.

Leadership training. Leadership training was the sixth common theme related to skills that contributed the advancement of female executives in the IT industry. Five of the female executives stated leadership training contributed to their advancement in the IT industry. Participant 5 stated, "Leadership training helped me become a better leader" (P5, personal communication, February 8, 2017). Leadership training was identified as an important component that supported the female executives' rise to executive leadership in IT.

Organizational knowledge. Organizational knowledge was the seventh common theme related to skills that contributed the advancement of female executives in the IT industry. Two of the female executives stated that leadership training contributed to their advancement in the IT industry. Participant 5 emphasized the importance of possessing "the ability to accomplish organizational goals, as well as career goal[s], [to create] a win-win situation" (P5, personal communication, February 8, 2017). Understanding how to advance one's career and who has the power help one do so were identified as important components that supported the female executives' rise to executive leadership in IT.

Interview question 3 summary. As in the responses to IQ1 and IQ2, exhibiting good leadership skills was identified as an important component that supported the female executives' rise to executive leadership in IT. Obtaining degrees in various disciplines and educational levels was identified as an important element that supported the female executives' rise to executive-level positions in IT. Attaining relevant certification was also another element identified by female executives that helped them rise to leadership. In addition, as stated in the responses to IQ1 and IQ2, female executives identified networking and obtaining industry and organizational knowledge as key components that helped them advance into leadership. Furthermore, attaining leadership training was also identified as an important component that supported the female executives' rise to executive leadership in IT.

Research question 1 summary. Research question 1 attempted to identify what leadership best practices and strategies female executives used in the IT industry. Responses to this question identified several female executives' best practices and strategies, such as developing good leadership qualities/skills, exceeding expectations, getting mentors and sponsors, organizational knowledge, career goals, networking, obtaining a college education, leadership training, investing in meaningful relationships, self-advocacy, having confidence, and earning a good reputation. The participants discussed these themes in detail and considered them important to advancing into executive-level positions in the IT industry.

Research question 2. Research question 2 sought to discover what challenges female executives face in the male-dominated information technology industry, which

formed a series of themes that were analyzed separately and collectively. The following interview questions were used to explore this research question:

- IQ4. What is unique about the culture in the IT industry that made it challenging for you to obtain your current executive-level position?

- IQ5. What are some of the most difficult challenges you faced personally and professionally along your journey in the IT industry, and how did you overcome these challenges?

Interview question 4. This question asked, What is unique about the culture in the IT industry that made it challenging for you to obtain your current executive-level position? Responses to this question yielded seven common themes: lack of inclusion, male-dominated, pipeline issues, rapid change, attrition of women, competitive, and lack of collaboration (see Figure 10).
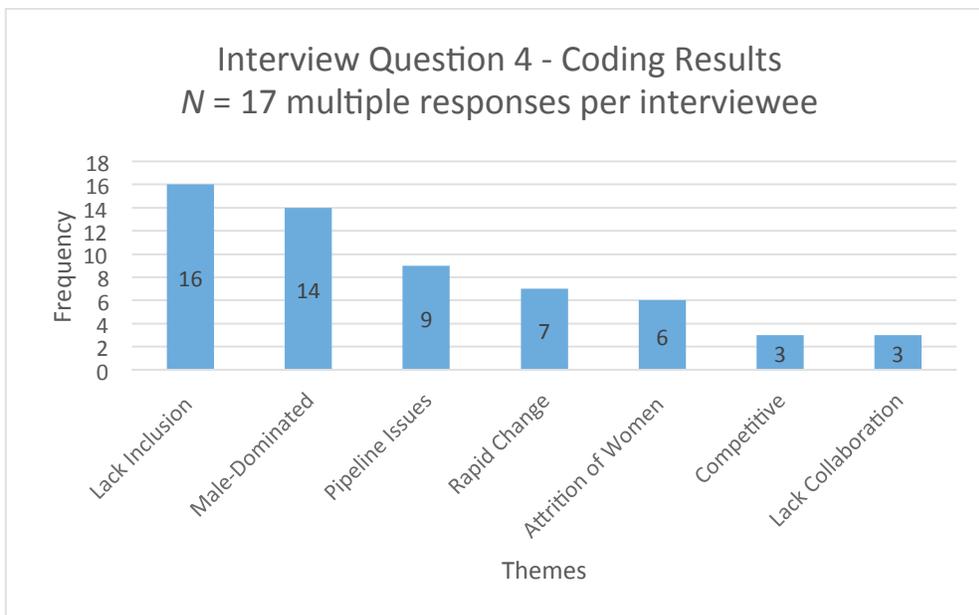

Figure 10. IQ4: Culture in the IT industry.

Lack of inclusion. Lack of inclusion was the first common theme identified about the culture in the IT industry. Fourteen female executives stated that a lack of inclusion

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described the culture in the IT industry. Participant 1 stated, "There is an underrepresentation of people of color" (P1, personal communication, January 28, 2017). Participant 2 stated, "The IT industry needs gender balance" (P2, personal communication, February 3, 2017). Participant 7 stated, "The IT industry is not welcoming to women" (P7, personal communication, February 14, 2017). Participant 13 stated, "The culture in the IT industry is sexist" (P13, personal communication, February 23, 2017). Participant 15 stated, "The perception of the culture in the IT industry is anti-feminine" (P15, personal communication, February 27, 2017). Participant 16 stated, "Women have to work twice as hard as men to get the same opportunities" (P16, personal communication, February 27, 2017). More leaders in IT need to turn up the volume when engaging more women/girls in IT. Furthermore, aligning people in the organization that value diversity will eliminate the lack of inclusion in the IT industry. Female executives identified a lack of inclusion as something unique about the culture in the IT industry.

Male-dominated. Male-dominated was the second common theme identified about the culture in the IT industry. Fourteen female executives stated that male-dominated described the culture in the IT industry. Participant 1 stated, "I'm often the only woman, and woman of color in meetings" (P1, personal communication, January 28, 2017). Participant 5 stated, "Finding real solutions to mitigate the 'bro culture' is important for changing the culture in the IT industry" (P5, personal communication, February 8, 2017). Participant 8 stated, "I've been the only woman at the table for most of my career" (P8, personal communication, February 15, 2017). Developing effective strategies for gender balance is important to changing the culture in the IT industry.

Female executives asserted that the IT industry culture is unique in that it is male-dominated.

Pipeline issues. Pipeline issues were the third common theme identified about the culture in the IT industry. Five female executives stated that pipeline issues described the culture in the IT industry. Participant 3 stated, "It is hard for women to obtain leadership positions because most IT companies promote from within" (P3, personal communication, February 3, 2017). Participant 5 stated that "there is biased hiring" (P5, personal communication, February 8, 2017). Addressing the pipeline issue requires better recruitment/hiring practices for women, as well as a conscious plan and strategy around inclusion for hiring women. Female executives identified pipeline issues as something unique about the culture in the IT industry.

Rapid change. Rapid change was the fourth common theme identified about the culture in the IT industry. Seven female executives stated that rapid change described the culture in the IT industry. Participant 1 stated, "Considering how quickly technology changes, what is hot today may not be hot tomorrow. For example, Pokemon Go was hot less than 6 months ago and now no one is playing it and they have moved on to the next thing" (P1, personal communication, February 15, 2017). Participant 7 stated, "The culture in the IT industry is high-stakes and big paychecks" (P7, personal communication, February 14, 2017). Participant 8 stated, "It's a pressure cooker" (P8, personal communication, February 15, 2017). Embracing new ideas and being open to learning new things helps people adapt to the rapid change in the IT industry. Female executives identified rapid change a unique quality of the culture in the IT industry.

Attrition of women. Attrition of women was the fifth common theme identified about the culture in the IT industry. Four female executives stated that attrition of women described the culture in the IT industry. Participant 8 referred to a "high dropout rate for women over the age of 35" (P8, personal communication, February 15, 2017). In order to mitigate the attrition of women, attention must be given to women at every stage of their career when they enter the IT industry.

Competitive. Competitiveness was the sixth common theme identified about the culture in the IT industry. Three female executives stated that competitive described the culture in the IT industry. Participant 7 stated, "When we are operating in a room of people with, 'the smartest person wins,' that is not a creative atmosphere that is not fostering innovation. It's really just holding things back" (P7, personal communication, February 14, 2017). Creating a culture that fosters creativity and innovation will help limit competition in the IT industry. Female executives identified a competitive working environment as something unique about the culture in the IT industry.

Lack of collaboration. Lack of collaboration was the seventh common theme identified about the culture in the IT industry. Three female executives stated that lack of collaboration described the culture in the IT industry. Participant 7 stated, "I think the culture is definitely, really masculine and it's very competitive and not collaborative" (P7, personal communication, February 14, 2017). Participant 13 stated, "I think that it tends to perpetuate cultures that are more competitive than collaborative" (P13, personal communication, February 23, 2017). Women and men putting forth more of an effort to work together will create more of a collaborative culture in the IT industry. The female

executives identified a lack of collaboration as a unique quality of the culture in the IT industry.

   Interview question 4 summary. The female executives identified a lack of inclusion as a unique aspect of the culture in the IT industry, as was the fact that the industry is largely male-dominated. When it came to recruiting women, the executives identified not having enough women in the pipeline to fill positions and producing more female leaders as something unique about the IT industry. When the issue of retaining women was discussed, many of the female executives identified the alarming dropout rate of women in the industry and increasing the number of female leaders as unique aspects of the IT industry's culture. Rapid change and the ability to keep up with industry change were identified as additional qualities of the IT industry, as were a competitive and aggressive working environment and a lack of collaboration among women and men.

   Interview question 5. This question asked, What are some of the most difficult challenges you faced personally and professionally along your journey in the IT industry, and how did you overcome these challenges? Responses to this question yielded six common themes: organizational culture, work-life balance, informal networks, confidence, glass ceiling, and geographic location (see Figure 11).
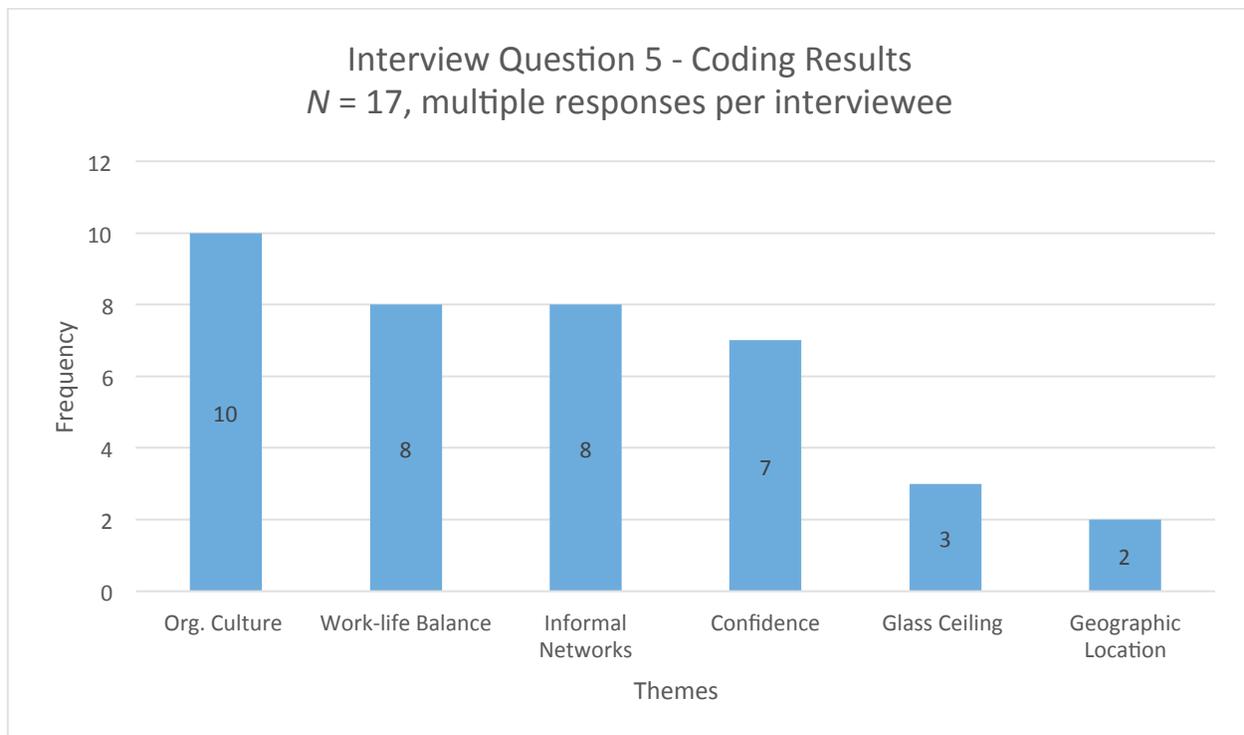
Figure 11. IQ5: Personal and professional challenges*.*

Organizational culture. Organizational culture was the first common theme

regarding the difficult challenges that female executives faced professionally in the IT

industry. Eight female executives stated that one of the most difficult challenges they

experienced in the IT industry was working in a hostile organizational culture.

Participant 5 stated, "Gender stereotypes was a professional challenge" (P5, personal

communication, February 8, 2017). Participant 8 stated that "culturally there is a sexual

objectification of women, which hinders career advancement" (P8, personal

communication, February 15, 2017). Participant 10 stated, "Having men bosses was a

professional challenge" (P10, personal communication, February 21, 2017). Participant

13 stated, "Sexual harassment in the workplace was a professional" (P13, personal

communication, February 23, 2017). Participant 14 stated, "Working in a hostile working

environment was a professional challenge" (P14, personal communication, February 27,

2017). Working in a hostile organizational culture is a difficult challenge the female

executives faced along their journey in the IT industry. They overcame this challenge by

finding an organization that appreciated their skill and valued their opinions.

Work-life balance. Work-life balance was the second common theme regarding

the difficult challenges that female executives faced professionally in the IT industry.

Seven of the female executives stated that achieving a work-life balance was a

challenge they experienced in the IT industry. Participant 1 stated, "There is a need

from an income prospective versus what feeds my soul" (P1, personal communication,

January 28, 2017). Participant 8 stated, "Having a work-life balance, family commitment,

being a good wife, mother, daughter, and friend was challenging" (P8, personal

communication, February 15, 2017). Maintaining a work-life balance was a difficult

challenge the female executives faced along their journey in the IT industry. All

participants agreed that negotiation on work-related issues was the key to establishing a

work-life balance.

Informal networks. Informal networks was the third common theme regarding the

difficult challenges that female executives faced professionally in the IT industry. Five

female executives stated that the inability to participate in informal networks was a

challenge that impacted their career advancement. Participant 8 stated, "Usually women

are not invited to events with all men, it was challenging gaining access to the right

people that could support my advancement" (P8, personal communication, February 15,

2017). Participant 16 stated,

> The most important challenge that I had to overcome is not participate in the
>
> informal networking, from a cultural perspective, I'm from India and it was hard to

adapt and focus on the informal network and the idea of building relationships to

succeed. (P16, personal communication, February 28, 2017)

Not having access to informal networks was a difficult challenge the female executives

faced along their journey in the IT industry. They overcame this challenge by

participating in relevant networking groups in the organization, appealing to internal

networks, and gaining access to the right people and resources that can offer support.

Confidence. Confidence was the fourth common theme regarding the difficult

challenges that female executives faced professionally in the IT industry. Four female

executives stated that having confidence in themselves and their skillset helped

overcome the challenges they faced in their career. Participant 4 stated, "Developing

confidence by sharing opinions, speaking up in meetings was how I advanced in my

career" (P4, personal communication, February 6, 2017). Participant 5 stated that

"acting like an executive was how others perceived me as a leader" (P5, personal

communication, February 8, 2017). Participant 14 stated that "having confidence, being

fearless and bold was important for career advancement" (P14, personal

communication, February 27, 2017). Participant 15 stated, "Having confidence

establishes credibility and results in career success" (P15, personal communication,

February 28, 2017). Being more confident was a difficult challenge the female

executives faced along their journey in the IT industry. They overcame this challenge by

building confidence in their skillset and the skillset of their team.

Glass ceiling. Glass ceiling was the fifth common theme regarding the difficult

challenges that female executives faced professionally in the IT industry. Three female

executives stated that the glass ceiling was a challenge that hindered their career

advancement. Participant 4 stated, "Breaking through the glass ceiling was a professional challenge" (P4, personal communication, February 6, 2017). Breaking through the glass ceiling was a difficult challenge the female executives faced along their journey in the IT industry. They overcame this challenge by learning how to overcome stereotypes and biases.

Geographic location. Geographic location was the sixth common theme regarding the difficult challenges that female executives faced professionally in the IT industry. Two of the female executives stated that geographic location was a challenge that hindered their career advancement. Participant 1 stated,

I'm in California and my company is very east coast. The company's headquarters and big locations are on the east coast. The opportunities for advancement are on the east coast. Because I'm not with a company that is based in CA the opportunities are very limited. (P1, personal communication, January 28, 2017)

Participant 9 stated, "I passed up multiple promotions because of relocation" (P9, personal communication, February 20, 2017). Geographic location was a difficult challenge the female executives faced along their journey in the IT industry. Female executive overcame this challenge by being flexible and making adjustments to their schedule to be more visible in virtual meetings and available for projects.

Interview question 5 summary. As in the responses to IQ4, working in a hostile organizational culture was identified as a difficult challenge that many of the female executives faced along their journey in the IT industry, as was difficulty maintaining a work-life balance. Many participants lamented the fact that they did not have access to

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informal networks that lead to career advancement. Some of the female executives identified that it was challenging to show and build confidence, something that posed difficulties in their journey in the IT industry. Breaking through the glass ceiling was another difficult challenge the female executives faced along their journey in the IT industry. Furthermore, business travel, not being able to relocate for leadership positions, and the ability to stay visible and connected to key executives that could potentially advance their career were examples of how geographic location was identified as a challenge that female executives faced along their journey in the IT industry.

Research question 2 summary. Research question 2 attempted to identify what challenges female executives faced in the IT industry. Responses related to this question identified several challenges female executives faced along their journey in the IT industry, such as lack of inclusion, the male-dominated nature of the industry, pipeline issues, rapid change, attrition of women, hostile and competitive organizational culture, lack of collaboration, work-life balance, exclusion from information networks, glass ceiling, and geographic location. The participants discussed these themes in detail and considered them important challenges they experienced along their journey in the IT industry.

Research question 3. Research question 3 sought to determine how female executives defined and measured success, which formed a series of themes that were analyzed separately and collectively. The following interview questions were used to gather information related to this research question:

- IQ6. How do you define success for yourself?

- IQ7. How do you measure that success?

Interview question 6. This interview question asked, How do you define success for yourself? Responses to this question yielded six common themes: balance, impact and influence, support family, recognition, and rewards (see Figure 12).
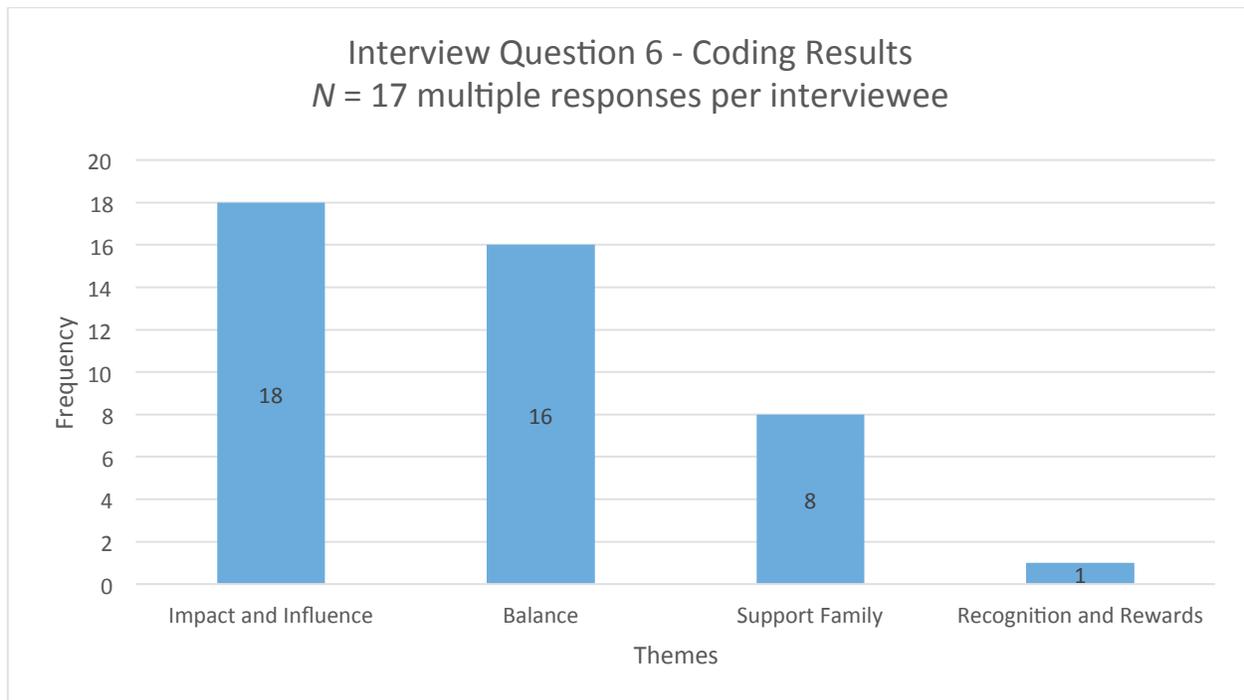
Figure 12. IQ6: Definition of success*.*

Impact and influence. Impact and influence was the first common theme regarding how female executives in the IT industry defined success. Nine female executives stated that they defined success in terms of the ability to have impact in the world and influence others. Participant 3 stated, "Making a difference in my organization and on my team is how I define success" (P3, personal communication, February 3, 2017). Participant 4 stated, "Adding value and developing as a contributor is success" (P4, personal communication, February 6, 2017). Participant 6 stated, "Having a positive impact in my company, family, and community is success" (P6, personal communication, February 10, 2017). Participant 7 stated, "Believing in something bigger

than myself, and leaving the world better than you found it is success" (P7, personal communication, February 14, 2017). Being able to have an impact and influence on their company, family, and community was how female executives defined success.

Balance. Balance was the second common theme regarding how female executives in the IT industry defined success. Twelve female executives stated that balance was how they defined success. Participant 1 stated, "Doing something that is intellectually and emotionally fulfilling at work and ability to blend outside work is success" (P1, personal communication, January 28, 2017). Participant 2 stated, "Shifting my perspective from survival to thriving is my definition of success" (P2, personal communication, February 3, 2017). Participant 4 stated, "Balance across all pieces of my life: spiritual, health, work, and family" (P4, personal communication, February 6, 2017). Participant 8 stated, "Success is balance that evolves as you evolve as a person, both personally and professionally" (P8, personal communication, February 15, 2017). Participant 14 stated, "Intellectual satisfaction created balance and success" (P14, personal communication, February 27, 2017). Participant 15 stated, "Independence and freedom created balance" (P15, personal communication, February 27, 2017). The ability to have a balanced life was how female executives defined success.

Support family. Support family was the third common theme regarding how female executives in the IT industry defined success. Five female executives stated that the ability to support family, both financially and emotionally, is how they defined success. Participant 1 stated, "Being able to be present for my family is success" (P1, personal communication, January 28, 2017). Participant 2 stated, "Having a safety net

is success" (P2, personal communication, February 3, 2017). Participant 4 stated, "Being a good parent is what I consider success" (P4, personal communication, February 6, 2017). Giving financial and emotional support to their families was how female executives defined success.

Recognition and rewards. Recognition and rewards was the fourth common theme regarding how female executives in the IT industry defined success. One female executive stated that receiving recognition and rewards was how she defined success. Participant 1 stated, "Some degree title, recognition, and rewards is success" (P1, personal communication, January 28, 2017). Being recognized and rewarded for her contribution to the business success is how this female executive defined success.

Interview question 6 summary. When discussing the definition of success, being able to have impact and influence in their company, family, and community was how many of the female executives in the IT industry defined success. In addition, they also defined success in terms of ensuring that they had a balanced life, as well as the ability to provide financially and give emotional support to their families was how female executives defined success. Finally, being recognized and rewarded for their contribution to business success was how one female executive defined success.

Interview question 7. This question asked, How do you measure that success? Responses to this question yielded seven common themes: achieving goals, feelings, success relationships, and empowerment (see Figure 13).
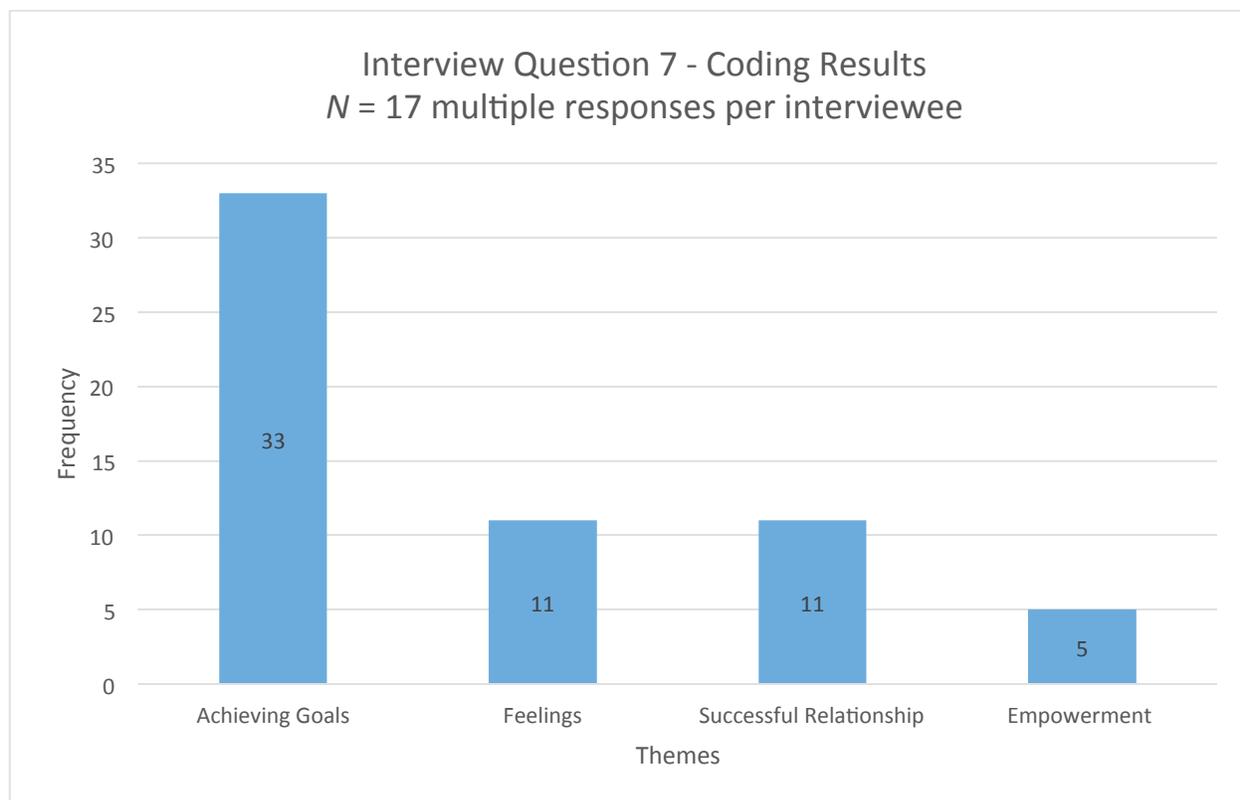
Figure 13. IQ7: Measurement of success*.*

Achieving goals. Achieving goals was the first common theme regarding how female executives in the IT industry measured success. Twelve female executives stated that achieving goals is how they defined success. Participant 3 stated, "Creating an effective, successful, and high-performance team is how I define success" (P3, personal communication, February 3, 2017). Participant 4 stated, "I'm a high achiever, setting and achieving goals for myself is how I define success" (P4, personal communication, February 6, 2017). Participant 5 stated, "I measure success based on if I'm learning and growing" (P5, personal communication, February 8, 2017). Female executives in the IT industry measured success via setting, tracking, and achieving personal and professional goals.

Feelings. Feelings was the second common theme regarding how female executives in the IT industry measured success. Nine female executives stated that

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they measured success based on how they felt personally and professionally was how they measured success. Participant 3 emphasized the importance of "not feeling depleted" (P3, personal communication, February 3, 2017). Participant 11 stated, "I measure success based on my level of stress" (P11, personal communication, February 22, 2017). Happiness, minimal stress, purpose, and meaning were all feelings that female executives in IT industry identified as ways in which they measured success.

Successful relationships. Successful relationships was the third common theme regarding how female executives in the IT industry measured success. Five of the female executives stated that having successful relationships was how they measured success. Participant 6 stated that having "a good relationship with my husband and children is how I measure success" (P6, personal communication, February 10, 2017). Participant 8 stated,

> As a woman it's a unique juggling act. What makes you successful at work, a driver and deliverer, hard-core get it done attitude is not what makes us successful at home. As a wife and mother you have to switch to being tenderer, loving, and caretaking. (P8, personal communication, February 10, 2017)

Participant 9 stated, "Marry well. The modern version - choosing a adaptable and supporting husband can reduce stress, make parenting possible, can collaborate on mechanics of life like business travel, finances, etc. A supportive spouse will be your most valuable supporter" (P9, personal communication, February 20, 2017). Female executives in the IT industry identified having supportive and nurturing relationships with family, friends, and colleagues as ways they measured success.

Empowerment. Empowerment was the fourth common theme regarding how female executives in the IT industry measured success. Five of the female executives stated that the ability to empower others was how they measured success. Participant 2 stated, "Empowering and helping people thrive is how I measure success" (P2, personal communication, February 3, 2017). Female executives in the IT industry asserted that helping team members thrive and succeed and removing roadblocks for others were ways in which they measured success.

Interview question 7 summary. Many female executives believed that their success was measured by setting and tracking personal and professional goals. Some female executives measured success based on how they felt on the job and when they left to return home. Many female executives measured success in terms of establishing supportive and nurturing relationships. Finally, some female industry measured success in terms of empowering others, whether team members or other women in the industry.

Research question 3 summary. Research question 3 attempted to identify how female executives measured success in the IT industry. This question uncovered several methods female executives in the IT industry used to measure success, such as balance, impact and influence, supporting family, recognition and rewards, achieving goals, feeling good, successful relationships, and empowering others. The participants discussed these themes in detail and considered them methods to measure success.

Research question 4. Research question 4 sought to determine what recommendations female executives would make to aspiring female executives in the male-dominated information technology industry. Responses to the following interview questions formed a series of themes that were analyzed separately and collectively.

- IQ8. What advice or recommendation would you provide women seeking executive-level positions in the IT industry?

- IQ9. Is there anything else you would like to share about your IT experience that you would be relevant to this study?

Interview question 8. This interview question asked, What advice or recommendation would you provide women seeking executive-level positions in the IT industry? Responses to this question yielded seven common themes: initiative, stay knowledgeable, perseverance, mentorship and sponsorship, strategy, expanding one's network, and collaboration (see Figure 14).
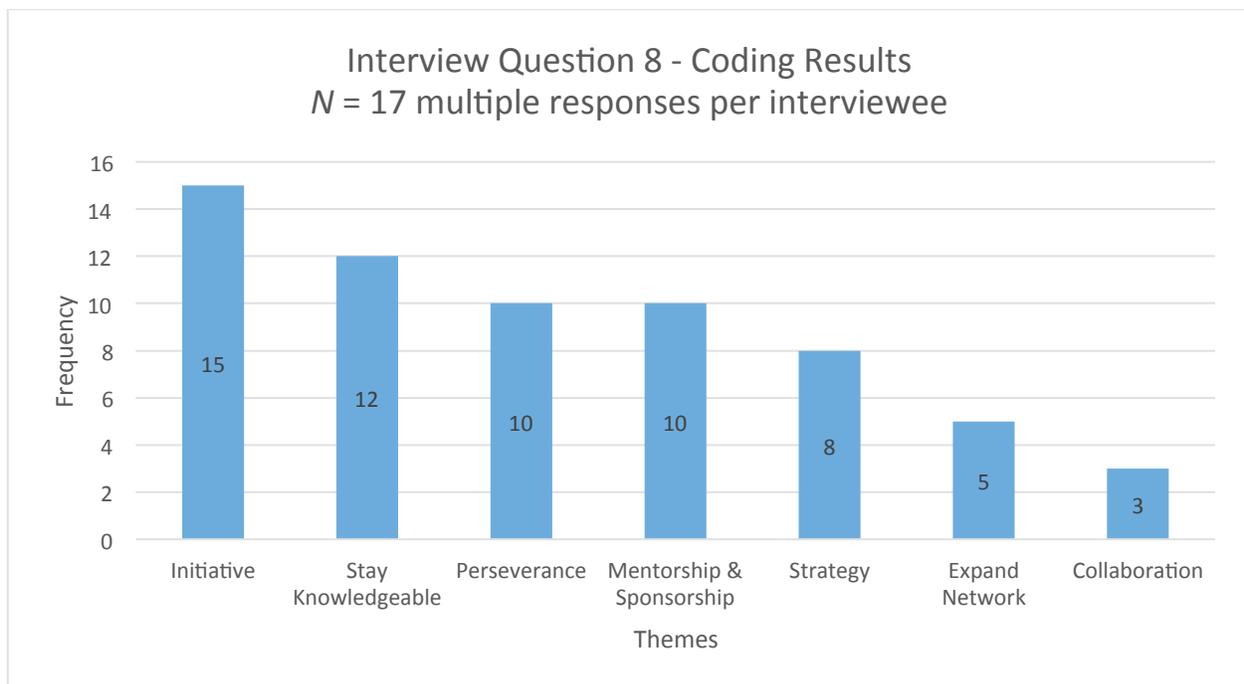

Figure 14. IQ8: Advice and recommendations.

Initiative. Imitative was the first common theme regarding recommendations female executives would make to aspiring female in the IT industry. Seven of the female executives stated that taking initiative is one the most important recommendations they would make to aspiring female executives in IT. Participant 3 stated, "Telling people that

you are interested in leadership roles will give you leadership opportunities" (P3, personal communication, February 3, 2017). Participant 4 stated, "Talking to management and people in the industry about leadership opportunities and resources, is important for career advancement" (P4, personal communication, February 6, 2017). Participant 15 stated, "Negotiat[ing] everything that is how you get what you want" (P15, personal communication, February 27, 2017). Participant 16 stated, "Learn[ing] to speak up and showcase your work will help you advance faster in your career" (P16, personal communication, February 28, 2017). Female executives provided women seeking executive-level positions in the IT industry the following advice: take initiative by expressing interest, push boundaries, be proactive, be assertive, be authentic, and advocate for oneself.

Stay knowledgeable. Staying knowledgeable was the second common theme regarding recommendations female executives would make to aspiring female in the IT industry. Seven female executives stated that staying knowledgeable is a recommendation they would make to aspiring female executives in IT. Participant 1 stated, "The industry is going through a shift. It is important to understand how IT connects with all aspects of the business" (P1, personal communication, January 28, 2017). Participant 5 stated, "Be a functional expert" (P5, personal communication, February 8, 2017). Participant 17 stated,

> Be a student of the industry. Anticipate trends and understand what future
>
> opportunities are available. Know your business. Know how the business stays in
>
> business. Know how the company makes money. Know what's important to the
>
> leaders in the organization. (P17, personal communication, March 2, 2017)

The female executives provided women seeking executive-level positions in the IT industry the following recommendations: stay knowledgeable by reading industry materials, and cultivate a broader understanding of the business, goals, objectives, and results.

Perseverance. Perseverance was the third common theme regarding recommendations female executives would make to aspiring female in the IT industry. Eight of the female executives stated that having perseverance is a recommendation they would make to aspiring female executives in the IT. Participant 2 stated, "To be successful in the IT industry, you must put on your big girl pants and get the job done" (P2, personal communication, February 3, 2017). Participant 3 stated, "Failure is okay, but learn from it" (P3, personal communication, February 3, 2017). The female executives advised that women seeking executive-level positions in the IT industry persevere by pushing themselves and learning how to deal with ambiguous situations.

Mentorship and sponsorship. Mentorship and sponsorship was the fourth common theme regarding recommendations female executives would make to aspiring female in the IT industry. Nine of the female executives stated that they would recommend aspiring female executives in IT obtain a mentor and a sponsor. Participant 5 stated, "Find your champions inside and outside organization" (P5, personal communication, February 8, 2017). Participant 8 stated, "Having real sponsors is instrumental, including men" (P8, personal communication, February 15, 2017). Participant 9 stated, "Get a sponsor or multiple sponsors so you can have more than one person advocating for you" (P9, personal communication, February 20, 2017). Obtaining male mentors, male sponsors, multiple mentors and sponsors were

recommendations the female executives would provide to women seeking executive-level positions in the IT industry.

Strategy. Strategy was the fifth common theme regarding recommendations female executives would make to aspiring female in the IT industry. Five of the female executives stated that having a good career strategy is a recommendation they would make to aspiring female executives in IT. Participant 8 stated, "Women need a professional playbook, this will help them be more strategic" (P8, personal communication, February 15, 2017). Participant 9 stated, "Be visible, speak at events, be mindful of your presence - how you carry yourself and do it in a way that reinforces the brand you want to be" (P9, personal communication, February 20, 2017). Female executives stated it is important for aspiring female executive to develop a career strategy that would lead to a leadership role, learn how to navigate corporate culture, especially in the executive level to network up the chain so others can use their social capital to help them accomplish career goals. In addition, it is important to conduct research on how to use strategy when taking on projects, such as project allocations and accepting and declining projects. For example, men get harder projects that lead to executive ranks,

Expand network. Expanding one's network was the sixth common theme regarding recommendations female executives would make to aspiring female in the IT industry. Four of the female executives stated that expanding one's professional network is a recommendation they would make to aspiring female executives in IT. Participant 9 emphasized the importance of building a "mutually beneficial network of women…. Studies show men have this organically, [but] women have to mindfully build

theirs" (P9, personal communication, February 20, 2017). The female executives recommended that women seeking executive-level positions in the IT industry build a network and develop a network of women inside one's own company and other companies.

Collaboration. Collaboration was the seventh common theme regarding recommendations female executives would make to aspiring female in the IT industry. Two of the female executives recommended that aspiring female executives in IT find ways to collaborate with other women. Participant 9 recommended that women offer other women "more olive branches, [and engage in] less competition. Strengthening the sisterhood will help more women advance in the industry" (P9, personal communication, February 20, 2017). Promoting and celebrating other women's success and finding ways to support other women were recommendations the female executives provided women seeking executive-level positions in the IT industry.

Interview question 8 summary. Many female executives recommended that women seeking executive-level positions in the IT industry take initiative and express interest in leadership, as well as stay knowledgeable about business goals and the industry. Most importantly, women seeking executive-level positions in the IT industry should be able to persevere through challenging situations and overcome barriers. Female executives also recommended that women seeking executive-level positions in the IT industry obtain a male mentor and sponsor, and multiple mentors and sponsors. Most significantly, female executives recommended that women seeking executive-level positions in the IT industry develop a career strategy that will lead to advancement into an executive-level position. As discovered in the responses to in IQ1, IQ3, female

executives advised women seeking executive-level positions in the IT industry to build a strong network, as well as find opportunities to collaborate with others in the industry, both males and females.

Interview question 9. This question asked, Is there anything else you would like to share about your IT experience that you would be relevant to this study? Responses to this question yielded six common themes: diversity awareness, overcoming biases, broader view of IT, effective leadership, and girls and K-12 education (see Figure 15).
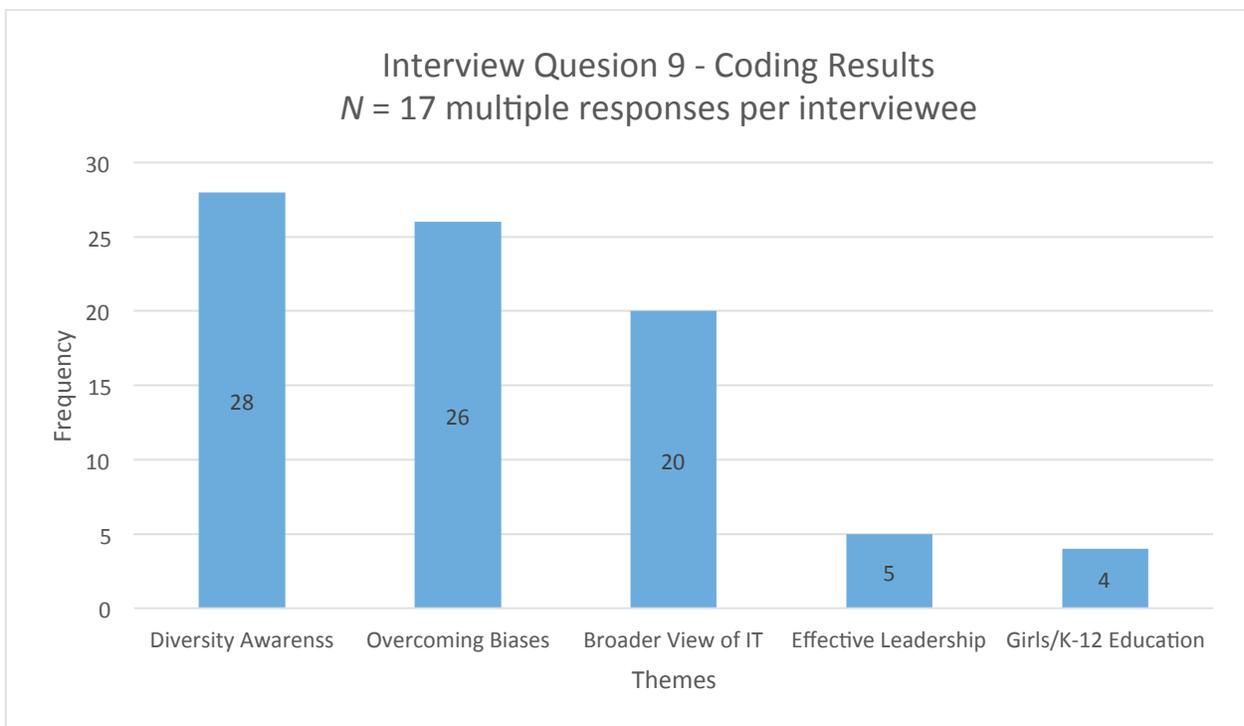
Figure 15. IQ9: Relevant information*.*

Diversity awareness. Diversity awareness was the first common theme regarding relevant information that the female executives in the IT industry thought was important to the research study. Twelve of the female executives stated that diversity awareness was an important topic. Participant 5 stated, "Good leaders understand they have a social obligation to deal with social issue, such as diversity awareness" (P5, personal communication, February 8, 2017). Participant 6 stated, "Diverse leadership and

workforce brings better business results" (P6, personal communication, February 10, 2017). Participant 12 stated, "Lack of gender diversity will put companies at risk of lawsuits" (P12, personal communication, February 22, 2017). Participant 13 stated, "Solving diversity issues will require organizations to figure out the barriers" (P13, personal communication, February 23, 2017). Participant 14 stated, "The U.S. needs science, and science needs women. On a national economic level women are needed to be successful. In addition, underrepresented groups helps satisfies science requirements for workers shortage" (P14, personal communication, February 27, 2017). Participant 15 stated, "Diversity awareness involves getting diverse people through the door but also knowing how to keep them" (P15, personal communication, February 27, 2017). Participant 16 stated,

> Women bring a balanced perspective to problem-solving. Gender diversity ensures creating a good working environment for women, which men have not been able to solve. Gender diversity will prevent more women from dropping out at different stages because women understand the issues women face with work-life balance. (P16, personal communication, February 28, 2017)

Participant 17 stated,

> From a diversity perspective, creating a diverse workforce, I think everyone needs to recognize that it's not a quick fix or a fast promotion. There's a gender imbalance, there is a lack of racial and ethnic diversity in some of the historically underrepresented groups. The companies have to really work on creating an inclusive environment in addition to focusing just on the diversity. (P17, personal communication, March 2, 2017)

Investing in diversity initiatives, valuing underrepresented groups, having meaningful dialogue on gender, and racial/ethnic diversity are necessary for finding diversity solutions. Regarding their IT experience, the female executives emphasized the importance of continuously bringing diversity awareness into a predominately male industry.

Overcoming biases. Overcoming biases was the second common theme regarding relevant information that the female executives in the IT industry thought was important to the research study. Seven of the female executives stated that overcoming barriers was an important topic to discuss in the research study. Participant 1 stated, "State your opinion, ask the hard questions, don't over-apologize, don't over-explain, are strategies that will help overcome biases" (P1, personal communication, January 28, 2017). Participant 2 stated, "Be passionate, self-motivated, and determined to go for what you want, will help overcome biases" (P2, personal communication, February 3, 2017). Participant 5 stated, "Gender bias is equally held by women and men - women are harsher critics of other women leaders" (P5, personal communication, February 8, 2017). Participant 6 stated, "Don't fall victim to those stereotypes" (P6, personal communication, February 10, 2017). Participant 8 stated, "Subconsciously women think they can't do it or succeed. Women need to deal with their own insecurities and then we can move forward" (P8, personal communication, February 15, 2017). Participant 16 stated, "I made it a point to get out of my comfort zone. Doing things that are uncomfortable will help overcome bias" (P16, personal communication, February 28, 2017). Creating an organizational culture that embraces gender differences will benefit innovation and the bottom line. Women can understand the impact of gender bias and

can mitigate it, by going beyond the individual contributor level and participating in a management role and the decision-making in the organization. Regarding their IT experience, the female executives emphasized the importance of finding out how to overcome biases by developing effective strategies for dealing with the biases.

Broader view of IT. Broadening one's view of IT was the third common theme regarding relevant information that the female executives in the IT industry thought was important to the research study. Eight of the female executives stated spoke to the importance of developing a broader view of IT. Participant 1 stated, "What is challenging and interesting is learning how to humanize IT" (P1, personal communication, January 28, 2017). Participant 3 discussed the need to change "women's mindset about IT - it does not look fun or interesting" (P3, personal communication, February 3, 2017). Participant 8 stated,

> There needs to be a mind shift that we are going to own it, it starts from within. IT is not different than any other industry - women can learn IT to the best of their ability and be highly successful. (P8, personal communication, February 15, 2017)

Participant 12 stated, "There is a crisis in regards to the lack of women in IT. We need to change the view of IT. We need to let women know that IT is a fantastic career with endless learning opportunities" (P12, personal communication, February 22, 2017). Participant 13 stated, "There is an urgency for finding solutions to gender diversity because all jobs will be tech in the future" (P13, personal communication, February 23, 2017). Changing the perception of IT and women having a broader view of what IT encompasses will help mitigate the issue of gender diversity in the IT industry. The

importance of women having a broader view of the IT industry is what the female executives believed would be relevant to this study.

Effective leadership. Effective leadership was the fourth common theme regarding relevant information that the female executives in the IT industry thought was important to the research study. Three of the female executives stated that effective leadership was important to discuss in the research study. Participant 2 stated, "Learning how to be creative and innovative is effective leadership" (P2, personal communication, February 3, 2017). Participant 4 said, "Develop[ing] leadership skills that are transferrable no matter what department is critical to advancement in the IT industry" (P4, personal communication, February 6, 2017). Knowing how to lead people effectively, developing trust, being creative and innovative, and creating great deliverable are skills aspiring leaders need to advance in the IT industry. Becoming an effective leader is what the female executives believed would be relevant to this study

Girls/K-12 education. Fixing the K-12 educational system was the fifth common theme regarding relevant information that the female executives in the IT industry thought was important to the research study. Two of the female executives stated that girls and K-12 education was important to discuss in the research study. Participant 2 stated, "Fixing and leveling the K-12 playing field for girls is important to increase the number of women in the IT pipeline and industry" (P2, personal communication, February 3, 2017). Participant 17 stated,

> I think that we have to be smart about how we pursue creating greater diversity and how we create opportunity and access what we provide for students so that

they can achieve, so that they can see themselves in these roles and in these

opportunities. (P17, personal communication, March 2, 2017)

Creating initiatives and opportunities and developing more mentorship and internship

programs for girls in K-12 will keep girls interested and engaged in the IT industry.

Making changes to the K-12 educational system and empowering more girls in

technology is what the female executives believed would be relevant to this study.

Interview question nine summary. Female executives believed that bringing

diversity awareness into a predominately male dominated industry will lead to solutions

for diversity issues in the IT industry. Many female executives believed that it is

important for aspiring female executives to developing effective coping strategies for

overcoming biases. Female executives believed that it is important that aspiring female

executives established a broader and positive view of the IT industry. Female

executives believed that it is important for aspiring female executive to become an

effective leader and learn how to add value to an organization. Finally, female

executives believed that it is important to make changes to the K-12 educational system

and engaging and empowering more girls to have interest in technology and the IT

industry.

Research question 4 summary. Research question 4 attempted to identify

recommendations for aspiring female executives in IT industry. IQ8 identified several

recommendations for aspiring female in the IT industry, such as taking initiative and

letting people know you are interested in leadership, staying knowledgeable,

persevering through challenges, the importance of mentorship and sponsorship, being

strategic, expanding networks, and finding opportunities to collaborate with women. In

addition, interview question 9 identified information that female executives thought was relevant to the study, such as diversity awareness, overcoming biases, cultivating a broader view of IT, effective leadership, and girls and K-12 education.

Summary

Data were collected by conducting in-depth interviews from January 28, 2017-March 2, 2017 with 17 female executives employed at various IT companies, including Fortune 500 companies. Each executive was asked nine interview questions. This approach enabled the researcher to gather in-depth information on the female executives' unique career path, including successes and challenges encountered while on their leadership journey and recommendations they would offer others seeking to obtain the same level of leadership.

Seventeen leaders participated in this process; each became an executive through employing leadership best practices and strategies. Each female executive faced personal and professional challenges and came from diverse backgrounds in terms of upbringing and education. However, they did share some common themes in terms what factors they believed contributed to their advancement to executive-level positions in the IT industry. Several factors appeared important to the career progression for each of the 17 female executive participants for this study. The results of the study showed that although the female executives didn't have a defined career plan, there were common themes regarding how they obtained their executive-level position. The leaders spoke about the importance of taking initiative, staying knowledgeable, perseverance, mentorship and sponsorship, having a career strategy, expanding their networks, and collaboration.

The purpose of this qualitative study was to gain insight on leadership best practices for female executives in the IT industry to advance to executive-level positions. Eleven main themes emerged; the top four themes totaled 52% of the responses in IQ1 through IQ3: leadership skills, exceeding expectations, industry knowledge, and organizational knowledge. The remaining themes for leadership best practices for female executives in the IT industry were mentorship/sponsorship, self-advocacy, career goals, establishing meaningful relationships, good reputation, confidence, and networking. Developing effective leadership skills was identified as the most important theme among female executives in the IT industry and was mentioned 52 separate times during the interview process. A summary of themes for the four research questions can be seen in Table 4. Chapter 5 will present the summary of the study, summary of findings, key findings, implications of the study, recommendations, researcher's observations, and final thoughts.

Table 4

Summary of Themes for Four Research Questions

RQ1: Leadership Best Practices and Strategies	RQ2: Challenges	RQ3: Definition and Measurement of Success	RQ4: Recommendations and Relevant Information
Leadership Qualities	Lack Inclusion	Impact and Influence	Initiative
Exceeding Expectations	Male-Dominated	Balance	Stay Knowledgeable
Industry Knowledge	Pipeline Issues	Support Family	Perseverance
Mentors & Sponsors	Rapid Change	Recognition and Rewards	Mentorship & Sponsorship
Organizational Knowledge	Attrition of Women	Achieving Goals	Strategy
Self-Advocacy	Competitive	Feelings	Expand Network

(continued)

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RQ1: Leadership Best Practices and Strategies	RQ2: Challenges	RQ3: Definition and Measurement of Success	RQ4: Recommendations and Relevant Information
Career Goals	Lack Collaboration	Successful Relationship	Collaboration
Networking	Organizational Culture	Empowerment	Diversity Awareness
Leadership Soft Skills	Work-life Balance		Overcoming Biases
Meaningful Relationships	Informal Networks		Broader View of IT
Support from Org. Leadership	Confidence		Effective Leadership
Reputation Confidence	Glass Ceiling Geographic Location		Girls/K-12 Education
College Degree Certification Leadership Training			

Note. This table displays a summary of all the themes derived through the data analysis process.

Chapter 5: Conclusion and Recommendations

The urgency of developing a better understanding of how to recruit and retain women in the IT industry will increase with the expected labor deficit in the U.S. The purpose of this study was to determine the leadership best practices employed and challenges faced by female executives in the IT industry and what recommendations they would provide aspiring female executives in the IT industry. The female executives who participated in this study held different executive titles and number of years in executive-level roles. Despite this, all participants described achieving career success as they advanced to executive-level positions in the IT industry. Their collective insights, experiences, and achievements can provide a roadmap for aspiring female executives in the IT industry. To provide a comprehensive view, the female executives described personal and professional challenges they faced along their journey in the IT industry, and how they overcame these challenges. Additionally, many of their direct quotes are included to retain the female executives' perspectives and voices. Their willingness to share their stories and experiences could be informative to current and aspiring female executives in IT, as well as organizational leaders in the IT industry.

The aim of this study was to provide an enriched understanding of leadership best practices that female executives practice that help them advance to executive-level positions. This study sought to add to the existing body of knowledge and support current and aspiring female executives in the IT industry, and in doing so positively impact the perception of employees and leaders in the IT industry. This chapter outlines the summary of the study, study results, key findings, implications of the study, recommendations, researcher's observation, and final thoughts.

Summary of the Study

The researcher began this research study committed to identifying leadership best practices employed by female executives in the IT industry. Female executives in IT companies, including Fortune 500 companies, were asked to identify challenges and successes they experienced along their journey in the IT industry. Although many of the female executives indicated that success is subjective, this study produced common themes on leadership best practices and strategies used by female executives used to advance to executive-level positions. The study found different interpretations of the questions but resulted in consistent responses from the female executives in the IT industry.

The 17 participants in this study were current or former female executives in the IT industry. With regard to executive-level experience, 47% of the female executives held an executive-level position between 5 and 15 years, 47% held an executive-level position between 2 and 4 years, and less than 1% held and executive level position for less than 2 years. With regard to leadership title, 29% of the female executives were Directors, 24% of the female executives were C-level, 29% of the female executives were Vice Presidents, 6% of the female executives were Presidents, 6% of the female executives were Sr. Directors, and 6% of the female executives were Executive Board Members. With regard to educational degree type, 52% obtained an MBA degree, 11% obtained a master's degree other than an MBA, 23% obtained a bachelors' degree, less than 1% obtained a doctorate degree, and less than 1% obtained a JD degree. With regard to ethnicity, 76% of the female executives were White, 17% of the female

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executives were Black, and less than 1% were Asian. The semi-structured interview provided a framework that could be adjusted during the interview process.

The goal of this study was to provide a blueprint for women who aspire to reach executive-level positions in the IT industry. In addition, this study intends to provide an overview of the success and advancement of female executives in order to provide a model for organizational strategies to promote the advancement of women in the IT industry. Chapter 1 provided an introduction to the research study. Chapter 2 highlighted the review of the literature with the intention of bringing awareness to the existing body of knowledge. The literature review identified several themes that were also discovered and identified during the data collection process. The literature review aimed to provide insight into barriers and obstacles women in IT faced when trying to advance to executive-level positions. Chapter 3 and 4 showed the framework and how data were compiled in this qualitative research study.

Summary of Findings

This qualitative study was designed to gather information from personal experiences of female executives in the IT industry on leadership best practices. The following section provides an analysis of the findings and themes that were extracted from the interview responses. Furthermore, the findings are compared to existing body of literature to determine whether the results correlate with, nullify, or add to the existing body of knowledge.

Leadership best practices. The purpose of this study was to identify leadership best practices and strategies that female executives employ to advance to executive-level positions in the IT industry. The findings related to the most important practice

employed by female executives was utilizing effective leadership skills. Developing effective leadership skills was mentioned 52 separate times and 28% of responses for its corresponding interview questions as being the leadership best practice or factor that contributed most to the advancement of female executives in the IT industry. Based on the findings, female executives indicated that developing and exercising good leadership skills was the driver for success and advancement to executive-level positions in the IT industry. Many of the female executives stated that they started developing leadership skills prior to advancement into leadership by managing and leading projects, practicing good communication, building high-performing teams, and achieving goals. These qualities were also consistent with the literature as leadership was defined as the ability to effectively manage tasks and exchange information, successful collaboration, obtaining a high level of productivity, building strong relationships, and achieving goals (Cohen, 1990; Donelly, Ivancevich, & Gibson, 1985; Hemphill & Coons, 1957; Jaques & Clement, 1994; Northouse, 2010; Prentice, 1961; Tannenbaum, Weschler, & Massarik, 1961; Yukl, 2010).

Additionally, another best practice female executives in the IT industry found to be important was the ability to employ effective leadership skills to influence, empower, and motivate others. Female executives stated that employing a leadership style that involved the participation of and input from their teams and other members of the organization was important. As Eagly et al. (1995) indicated, women are more successful leaders when they use a leadership style that is more participatory or democratic. A leader's ability to empower and motivate others is associated more with a transformational leadership style. A transformational leadership style is necessary

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during times of uncertainty and change and fits the demands of present-day organizations because leaders can build trust during change (Northouse, 2010; Shadraconis, 2013). Since the IT industry is changing constantly, it is important that female executives in the IT industry employ a leadership style that motivates and influences others. Based on the findings, female executives thought it was important to practice a transformational leadership style to build trust with their teams, which allows them to make necessary adjustments to meet the current business needs of the organization. Similar to transformational leadership, some female executives in the IT industry stated that practicing thought leadership—inspiring others with their vision and creative ideas—helped them become effective and successful leaders. These practices were also consistent with the literature as influence, motivation, and fulfilling the needs of team members were mentioned as important elements of leadership (Bolden, 2004; Burns, 1978; Cohen, 1990; Conger, 1992; Hollander, 1978; Hersey & Blanchard, 1988; Rauch & Behling, 1984; Van Vugt, Hogan, & Kaiser, 2008; Vroom & Jago, 2007; Zaleznik, 1977).

Strategies. Many of the female executives in the IT industry spoke of the importance of being strategic when seeking to advance into leadership. Establishing clear career goals and a plan is critical for advancement into leadership. A good strategy provides a clear roadmap consisting of guidelines to achieve desired goal (Watkins, 2007). One of the key elements of their strategies was a compelling vision that was aligned with their personal goals. In addition, female executives identified exhibiting strategic leadership as an important factor that contributed to their advancement in leadership. Ireland and Hitt (2005) indicated that strategic leadership is

the ability to have a vision, anticipate trends, maintain flexibility, initiate change, and think strategically. Female executives mentioned that employing strategic leadership by having a vision helped them advance to executive-level positions. Other elements of their strategies included acquiring industry knowledge and understanding the business needs of the organization. Female executives mentioned being flexible, optimistic, and producing good deliverables were factors that helped them advance into leadership. These components were consistent with the literature as strategy, acquiring knowledge, and establishing direction to achieve goals are important elements of leadership (Conger, 1992; Yukl, 2010; Yukl & Van Fleet, 1990).

In summary, the results from RQ 1–RQ 3 on leadership best practices and strategies for career advancement provide an opportunity for consulting firms to develop leadership training programs and executive coaching programs for women in the IT industry. The leadership training should focus on leadership development, leadership styles, effective communication, building strong relationships, and strategies for navigating a male-dominated industry. The executive coaching program should concentrate on self-assessment, career strategy, goal-setting, and negotiation techniques.

Challenges. Based on the themes that emerged in response to the research question 2 with 16 instances and 52% of responses for its corresponding interview question, it was apparent that the lack of inclusion of women, specifically in leadership roles in a male-dominated industry, was a challenge for many female executives. Many of the female executives became more aware of the lack of inclusion when they attended meetings and realized that they were the only women in the room or when

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their opinions and thoughts were overlooked by men or leaders in the organization. Learning and developing strategies to overcome obstacles and barriers was mentioned as another challenge that female executives faced along their journey in the IT industry. Many of the female executives stated that they saw examples of barriers during meetings and exclusion from informal networks that could lead to advancement, such as events outside of work like happy hour, poker games, golfing, and retreats. This was also consistent with the literature on barriers and obstacles that prevented women from advancement into leadership positions. According to Jackson (2001), several barriers that prevent women from advancing to executive-level positions include working in positions where there is little opportunity for advancement or growth, exclusion from informal networks, and gender stereotypes and biases. In addition, female executives mentioned stereotypes and biases in IT several times throughout the interview process. Stereotypes and biases against women are still deeply rooted in the IT industry in hiring practices and career advancement.

The literature provided a discussion of diversity pertaining to workplace diversity, gender diversity in IT, and technology management and diversity. Throughout the review of the literature, it was noted that diversity awareness in the IT industry is essential in creating a diverse and inclusive culture in the technology industry and is important for finding solutions to the progressing problem of gender and racial/ethnic diversity in the IT industry (Davis, 2009; Jayne & Dipboye, 2004; Nishii & Mayer, 2009).

Additionally, female executives in the IT industry stated that leaders valuing and appreciating women's perspectives and how women can contribute to the organization is important to business success. Female executives stated that leaders in IT

companies should make it a point to create an environment where women are valued and appreciated. These beliefs were also consistent with the literature on the gender intelligence of an organization. As noted by Annis (2013) and Gurian (2010), leaders that have gender intelligence appreciate and value how women contribute to their organizations' success.

There are also instances where stereotypes and biases against women occurred during interactions with international clients. Globalization was stated as a challenge for female executives during their journey into leadership. This is consistent with the literature on women leaders and globalization. As Strout (2001) noted, many countries in Asia and Middle East that see women in a more traditional role avoid doing business with women because of their perception of women being ineffective leaders in business.

Furthermore, the organizational culture in the IT industry was mentioned 16 times or 36% of the responses as being a challenge that prevented women from advancing into leadership positions. Many of the female executives stated that a difficult challenge they faced along their journeys in the IT industry was working in a hostile organizational culture. This was consistent with research on organizational culture in the IT industry, which showed that a hostile and aggressive organizational culture contributes to the lack of women in leadership roles (Gellman, 2016; Ingersol, 2017; Marcus, 2015; Obrien, 2016; Zeiden, 2016).

Measuring success. Based on the themes that appeared from the findings, impact and influence was mentioned 18 times and 42% of responses for its corresponding interview question, it was apparent that the ability to have an impact and influence on their organizations and in the IT industry defined success for many of the

female executives in the IT industry. This was also consistent with research on women's success in the IT industry. As Harding (1998) noted, women have made and continue to make significant contributions to the technology industry. The advancement of women in the IT industry provides opportunities to make significant contributions to the industry. Therefore, the advancement of more women into executive-level positions will produce a greater impact and influence on the IT industry.

Most importantly, the results from RQ 4–RQ 7 on challenges faced by female executives in the IT industry and the measurement of success offer an opportunity for consulting firms to develop a corporate culture management program that can help IT companies create a more positive and inclusive working environment and help women deal with the challenges they face in the IT industry. The corporate culture management program should provide trainings in that areas of global diversity and inclusion, team building, collaboration, conflict management, and employee engagement and satisfaction.

Recommendations. The final summary of the findings focused on a recommendation for engaging and supporting women in the IT industry. Each female executive stated that obtaining a college and advanced education was essential to her advancement in the IT industry and that education provided the skills needed to succeed as a leader. The role of education was mentioned four times by female executives in the IT industry. The literature provided a discussion on college education. As McRobbin (2014) asserted, gender equity in school provides a critical component in shaping gender roles and expectations before women enter the workplace.

In addition, the literature discussed keeping young girls in K–12 interested and engaged in technology. As noted by Aina and Cameron (2011), the K–12 education system has prejudices and masculine biases, and the system tends to promote traditional gender beliefs. Female executives stated that it was important for policymakers and educators to fix the K–12 educational system to keep girls interested and engaged in the IT industry. Some female executives believed that it was important to develop technology skill building initiatives and programs for girls as well.

In conclusion, the results from RQ 8 and RQ 9 support recommendations for changing the perception of the way women are seen in the industry and eliminating biases in the educational system. President Obama set a goal for the U.S. to become the global leader in science and technology. However, in order to achieve that goal government leaders, industry leaders, and educators need to work together to develop innovative strategies that will keep women engaged in scientific and technical careers, as well as prepare young girls to become the next generation of industry leaders.

Key Findings

IT companies have committed awareness and resources to increasing diversity in their organization. Even with making these investments, many IT companies have yet to realize the benefits and expected outcomes of gender diversity. In addition, some IT companies have assumed that investments in diversity initiatives would automatically result in an inclusive organizational culture and provide the same advancement opportunities for men and women. Based on the experiences reported by female executives in the IT industry, this is inaccurate perception of the culture in the IT industry. The presence of women in the IT industry does not equate to an inclusive

organizational culture. An inclusive organizational culture is created when women feel appreciated and valued in their organization. Appreciation and value are key requirements to feeling included in a group (Shore et al., 2010).

Implications of the Study

The aim of this study was to identify the effective leadership best practices that female executives employ to obtain executive-level positions, and subsequently identify the components that make up the rubric of success for women in the IT industry. As women in the IT industry work to achieve career success, they must learn how to navigate complex organizations to achieve that success. As such, the findings of this study can be used by colleges and universities with business or leadership programs to develop or enhance curriculum that integrates proven best practices identified in this research study. In addition, IT companies can use the findings to develop leadership training and coaching materials that are constructed upon the proven success of female leaders in the industry. IT companies could also use the findings to develop or enhance diversity employee training materials that are constructed based upon the success of female leaders in the IT industry. Additionally, the findings can be used for leadership development workshops, seminars, and conferences for women in the IT industry. Lastly, the findings can be used to develop a consulting practice for executive coaching that leverages proven success strategies of female executives focusing on developing effective leadership skills, strategy, and collaboration.

Current IT women practitioners. The findings in this study may also be utilized to develop a training and development program for current IT women practitioners in the IT industry. As a part of their recruitment and retention strategy, IT companies can use

the findings of this study to develop training and development programs that improve skills and knowledge to cope with rapid changes in the IT industry. Furthermore, the training and development programs for current IT women practitioners should address opportunities for advancement and strategies to reduce employee turnover. Research indicates that training and development is instrumental in job satisfaction, reducing employee turnover, and beneficial for employee retention (Jehanzeb & Bashir, 2013).

Current IT women in program management. The findings in this study may also be utilized to inform and develop a leadership training program for program managers in the IT industry. As part of their retention strategy, IT companies can use the findings of this study to develop programs that prepare current IT women in program management for executive-level leadership roles. From a practical inference, leadership trainings promote work engagement and enhances the career success of women (Vincent-Hoper, Muser & Janneck, 2012). In addition, the findings of this study can be used as indicators of effective skills, knowledge, and abilities of an effective leader of an IT company. As an implementation strategy, IT companies can create short training programs for women that focus on career strategy, communication, networking and building relationships, measurement of success, and leadership skills.

The findings in this study may also be utilized to develop a mentoring program for current women in program management in the IT. The findings from this study can be used to create a formal mentoring program that provides an opportunity for coaching and sponsorship. Formal mentoring programs foster the advancement of women and create a more supportive working environment (Mark et al., 2001; Phillips-Jones, 1983; Wanberg, Kammeyer-Mueller, & Marchese, 2006).

Current IT women executives. The intent of this study was to provide a blueprint for future and current women executives in the IT industry as they navigate their journeys to advancement in executive-level management in the IT industry (Cao & Xue, 2013; Charan, Drotter, & Noel, 2001; Helfat, Harris, & Wolfson, 2006; Northouse, 2007). In addition, this study provides a foundation of key elements derived from leadership best practices and strategies that current female executives should consider. Optimistically, this study also provides inspiration and motivation for current female executives to continue their journeys, despite any challenges they may encounter.

Programs for girls in K-12. The findings in this study may also be utilized to inform and develop mentoring and tech programs for young girls in K–12. Nonprofits such as Girls Who Code, Black Girls Code, and other organizations that offer programs that aim to inspire young girls to learn tech skills and instill computer science aspiration can use the findings from this study to promote the importance of girls' participation in the tech industry and to keep young girls interested and engaged in the IT industry. Data suggested that programs encouraging girls to learn tech skills increases technical skills and knowledge and the perception of social support. Furthermore, tech programs for young girls decrease the negative stereotypes about girls and women in the IT industry (Barton & Brickhouse, 2006; Denner, 2007; Denner, Werner & Ortiz, 2012).

Colleges and universities and business and leadership programs. The theme of developing effective leadership skills emerged multiple times through this study. Many female executives in the IT industry indicted that their ability to develop leadership skill through their education in business and leadership was integral to their success. Studies show that there is a need for curriculum in business and leadership

programs that focus more on interpersonal skills (Kretovics, 1999; Mintzberg & Gosling, 2002; Pfeffer & Fong, 2002; Sturges, Simpson, & Altman, 2003). As such, business and leadership programs can utilize the findings of this study to enhance their curriculum to include courses that focus on strengthening leadership skills and provide students with the skills necessary to advance into leadership positions in the IT industry, such as emotional intelligence, ethics, building trust, motivation, learning and development, change management, economic and political systems, international relations, negotiation, advocacy, leadership styles with an emphasis in transformational leadership, strategic leadership, and thought leadership. Colleges and universities with business and leadership programs can utilize these findings to create curricula that provide students with the skills outlined in this study to best prepare them for success when they leave college and enter the workforce.

IT companies and diversity training programs. The findings in this study may also be utilized to inform and develop or enhance diversity training programs by human resources professionals in the IT industry. The advancement of women into leadership positions in the IT industry will require IT companies to create an inclusive and supportive work culture (Catalyst, 2015b; U.S. EEOC, 2016). As part of their annual employee diversity training, IT companies can use the findings of this study as strategies for creating an organizational culture that is positive and inclusive. IT companies can create diversity training programs for female and male employees that focus on diversity awareness, creating a culture of inclusion, team building, and collaboration.

Leadership development workshops, seminars, and conferences and women in the IT industry. The findings of this study may also be utilized to inform and develop materials for workshops, seminars, and conferences for women in the IT industry. Leadership training and professional development is most effective when it takes place continually, and occurs in the early and mid-to late career stage (Sonnino, 2016). The findings can be used as leadership best practices and strategies for women in advancing to leadership position in the IT industry. Relevant material for workshops, seminars, and conferences will focus on improving self-confidence, communication, emotional intelligence, career strategy, team building, networking and building relationships, mentorship/sponsorship, strategies for acquiring industry and organizational knowledge, effective leadership, and strategies for overcoming obstacles and barriers.

Consulting and executive leadership coaching. The findings of this study identified not only the leadership best practices that female executives in the IT industry employed, but also the lack of female leaders in the IT industry. As such, the findings of this study lay the foundation for creating a form of consulting and executive leadership coaching that is evidence-based and geared to help aspiring and current female executives succeed as leaders in the IT industry. U.S. labor data indicates that due to the expected exit of Baby Boomers from the workforce and new immigration policies, there will be a tremendous need for skilled workers and leaders in the IT industry (Bennett et al., 2008; Charette, 2013; Marginson Tytler, Freeman, & Roberts, 2013; Science and Technology Committee, House of Commons, 2016). Nonetheless, women's representation in the IT industry, when compared to the total population, is

only a portion of what it should be if the measure for effective representation is an IT executive team that is reflective of their business customers. This gap in representation provides an opportunity for a consulting firm to provide training and executive coaching to women seeking executive-level positions so they can be equipped with the right skills to lead an IT company effectively from day one.

Recommendations for Future Study

As first lady Michelle Obama stated, we need "all hands-on deck" if the U.S. is going to be a global leader in technology, and that will require clearing hurdles for women and girls as they navigate careers in technology (Obama White House Archives, 2011). This study focused on leadership best practices that female executives have used to advance to executive-level positions in the IT industry. Further studies are recommended to continue to increase the body of knowledge of the advancement of women in a male-dominated industry and find solutions for creating an inclusive culture for women in the IT industry. To ensure greater breakthroughs pertaining to women in executive-level roles in IT and male-dominated industry, the following are recommended for future studies:

- Enhance the inclusion/exclusion criteria to include female executives in the IT industry who work for nonprofit organizations. Doing so would help strengthen the validity and reliability of the results. This will result in a more in-depth study that explores the best practices and strategies of female executives in IT industry from the diverse perspectives of female executives. Expanding the population to include female executives who work in non-profit

organizations will evaluate if the themes are legitimate and consistent (Creswell, 2013).

- Conduct a study with employees in the IT industry as the participants learn which leadership best practices and strategies are most effective, impactful, and influential to achieving business goals. The results in this study identified empowerment and motivation as leadership best practices for female executives in the IT industry. In addition, many of the female executives in the IT industry measured success by how they influenced and impacted others. Feedback from employees will help leaders develop an effective strategy for achieving the needs of their employees and the desired goals of the organization (Ballou, 2001; Bass, 1985; Meuser et al., 2016; Watkins, 2007).

- Conduct a study on students at colleges and universities that utilize the findings of this study for curriculum for business or leadership programs to determine if more female students stay interested and engaged in the IT industry. The number of women obtaining degrees in business and leadership is on the rise (Moran, 2015). Although women are earning advance degrees, they still experience obstacles and challenges with navigating and advancing in the IT industry. Incorporating the findings of this study into curricula for business and leadership programs will provide female students with effective practices and strategies for overcoming obstacles and challenges, which will help keep them interested and engaged in the IT industry (Stellings, 2014; Warner, 2014, 2015).

- Conduct a study on IT companies that utilize the findings of this study for materials for leadership training and mentoring programs to determine if more women advance to leadership positions after they participate in the programs. Leadership training was identified by female executives as effective leadership requires training (Doh, 2003). Therefore, it would be beneficial to investigate if leadership training is linked to the advancement of women in the IT industry. Furthermore, mentoring programs provide women with the skills they need for leadership positons (Cody, 2016). Thus, an examination of how the findings improved mentoring programs and contributed to the advancement of more women in the IT industry is important.

- Conduct a study on IT companies that utilize the findings of this study for materials for diversity training programs and survey employees to determine if the diversity training programs created a more positive and inclusive organizational culture. Recent diversity reports indicated various tech companies are failing to achieve their diversity initiative goals (Alba, 2017; Dickey, 2016; Wells, 2015). Adverse work culture is still identified as very common among women in the IT industry. Hence, a need for change and improvement in diversity programs is necessary for creating a more inclusive organizational culture for women in the IT industry (Avery et al., 2007; Mor Barak & Levin, 2002; Shore et al., 2010).

- Conduct a study on women who receive executive leadership coaching, utilizing the findings from the study on leadership best practices and

strategies to track their progress in advancing to executive-level positions. Advancement in leadership will require women to rely on approaches such as executive coaching to help them strategize on how to effectively develop a plan for career success (Cody, 2016; Doh, 2003; Hewlett, 2014; Lien, 2015; Young et al., 2013). Therefore, it will be necessary to track the advancement of aspiring female executives who use executive coaching as an approach to assist them with advancement into leadership positons.

- Rather than limiting a study to female executives in IT, conduct a study that interviews both female and male executives in IT. Doing so could help identify common themes, regardless of gender, or help determine leadership best practices, challenges, and successes that are gender-specific. Although studies indicated that there are minimal differences in how women and men lead organizations (Eagly & Johnson, 1990; Eagly, Karau, & Makhijani, 1995; Eagly, Makhijani & Klonsky, 1992), it is recommended that feedback from male leaders in the IT industry be used to provide a more diverse perspective on best practices and strategies for leaders in the IT industry. Furthermore, the inclusion of male leaders will help identify similarities and differences and provide additional best practices for women leaders to advance into leadership roles and achieve business goals.

- Conduct a study on females in mid-level management in the IT industry, instead of the approach utilized in this study, which focused on the lived experiences of female executives in IT. Research indicated what women are more successful at mid-level management roles (Northouse, 2010).

Therefore, the findings in the study on females in mid-level management in the IT industry will offer a better understanding of the experiences and challenges of women in middle management. Comparing and contrasting themes between mid-level management and female executives in the IT industry is important to help IT companies improve strategies for recruitment and retention.

- Conduct a study of female executives located in several geographic locations (both domestic and international) and try to determine the role societal culture plays in the upward mobility of women. Globalization is forcing leaders of organizations to assess business needs from a more diverse and global perceptive (Elmuti et al., 2009; Strout, 2001). Assessing the differences in societal and cultural roles and leadership can be used by leaders in the IT industry to develop strategies to meet the needs of international employees, as well as achieve their global business goals.

- Conduct a study to compare female executives in other male-dominated industries—such as science, engineering, law, and law enforcement—with female executives within the IT industry, determining leadership best practices, challenges, and successes that are industry-specific. This study will help identify strategies for women to overcome the barriers and obstacles, such as stereotypes and unconscious biases that prevent them from ascending up the corporate ladder in other male-dominated industries. Therefore, an investigation of the structural equality in other male-dominated

industries is critical to resolving gender inequalities in all industries (Deavaux & Devillard, 2008).

Furthermore, additional interview questions could be included to better understand the issue being studied. For example, the following questions could be asked:

- After how many years into your career in the IT industry did you decide you wanted to get into leadership? This interview questions would help identify factors and challenges for women in IT in the earlier stages of their careers as they transition into leadership roles. Understanding and identifying the mechanisms that hinder women's careers at the beginning will help them transition to a more senior role (Ibarra, 2016).

- How long did it take you to obtain your first leadership position in the IT industry? Research in 2016 showed men advanced faster than women in terms of career progression (Catalyst, 2016). Additionally, men were more likely to advance into executive-level positions shortly after they obtained their MBA degrees (Pfeffer, 2010). Therefore, this interview question would determine the average length of time it takes women who hold advance degrees to move into leadership roles in the IT industry.

- What is your leadership style? Do you feel that using that style contributed to your advancement into a leadership position? The female executives in this study identified transformational leadership, strategic leadership, democratic leadership, participatory leadership, and thought leadership as effective leadership styles. However, the possibility of additional, effective leadership

styles used by female executives in the IT industry does exist. This interview

question would identify additional leadership styles that are effective and

employed by female leaders in the IT industry.

Researcher's Observations

Several observations were prominent during the data collection process. All the

female executives were authentic and seemed very comfortable sharing their

experiences in the IT industry. The female executives appeared to provide truthful

responses to the interview questions. The female executives shared both their positive

and negative experiences in the IT industry. In sharing their experiences and stories,

there was an attempt on their part to reflect and gain knowledge. During the course of

the interviews, female executives would stop and reflect before answering the interview

questions. In those instances, the female executive espoused a reflective perspective,

expressing how they may have dealt with the situation differently. This foretold of their

individual desires to develop continuously and learn as leaders.

A last observation involved the female executives' emotional intelligence. All 17

female executives seemed to exhibit the five characteristics of emotional intelligence

(Greenspan, 1996):

- Self-aware, conscious of their strengths and weaknesses.

- Self-regulated, being able to show emotion in a controlled manner.

- Motivated to produce sustainable outcomes.

- Empathic, being able to understand and help others.

- Socially skilled, demonstrated by their communication skills, listening, and

  ability to build meaningful relationships.

Final Thoughts

From the beginning of the research study, this researcher desired to hear the stories and experiences of female executives in the IT industry. It was important to better understand the leadership best practices they employed, challenges and success to achieve this desired goal. This desire was acknowledged by the progression of the underrepresentation of female leaders in the IT industry and in corporate America, and yet a seeming lack of focus on improving the culture in the IT industry.

The current focus on increasing gender diversity in the IT industry fails to examine a comprehensive systems approach. By focusing on diversity initiatives and failing to address the issues of culture of inclusion will continue to produce adverse outcomes in the IT industry. A systems approach to creating a culture of inclusion for women in the IT industry includes considering formal and informal practices, understanding the elements that contribute to the issue, bringing awareness to leaders of biases and stereotypes, evaluating existing processes and systems, engaging and holding leaders accountable, providing impartial opportunities and access, forecasting and measuring results, and valuing the opinions of the group they seek to recruit and retain. Merely focusing on increasing the numbers will not improve gender diversity in the IT industry. To summarize the sentiments of participant 5, leaders have a social obligation to deal with social issues; therefore, leaders in the IT industry have an obligation to address the issue of underrepresentation of women in the industry.

The researcher's doctoral experiences, knowledge, and continuous research on the IT/STEM industry showed her the segregation and inequality trending in these industries firsthand. Most importantly, she came to understand the risk of

underrepresented groups getting left behind, which spurred on her passion and

advocacy for women and diversity in these industries. Based on her research she

decided to turn her advocacy into action; and decide to become an agent of change

who will search for and proffer real solutions that will help close the gender and diversity

gap in the IT/STEM industry.

The researcher's vision and goal is to create a bridge between these

underrepresented groups and leaders and companies in the IT/STEM industry. Through

collaborative efforts, she believes the IT industry can successfully achieve the closure of

the gender and racial gap, opening doors of infinite opportunities for women, minorities,

and youth so they can engage with and become a relevant part of the IT/STEM industry.

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    attract more-women/

APPENDIX A

Letter to Prospective Participants

November 27, 2016

Dear Senior Leader:

I am a doctoral candidate in the Education - Organizational Leadership program at Pepperdine University conducting research for my dissertation. The topic of my dissertation is Leadership Best Practices for Female Executives in the Technology Industry. The purpose of this study is to determine the best-practices that female executives employ to make them successful in leading in the IT industry. I am inviting you to voluntarily participate in my study, but you are in no way obligated.

Should you have any questions, please do not hesitate to contact me at (█████████ or █████████████████████. Thank you in advance for your time and participation.

Sincerely,

Danielle Jenkins,
Pepperdine University
Doctoral Candidate

APPENDIX B

Interview Recruitment Phone Script

Good morning/afternoon <Potential participant Name>,

My name is Danielle Jenkins and I am a doctoral candidate at the Graduate School of Education and Psychology at Pepperdine University. I am currently working on my dissertation entitled LEADERSHIP BEST PRACTICES OF FEMALE EXECUTIVES IN THE IT INDUSTRY.

The purpose of this study is to determine the best-practices that female executives employ to make them successful in leading in the IT industry. This study consists of 8 open-ended interview questions that will focus on identifying the successes and challenges that current female executives have experienced in their leadership roles. I am seeking out participants to help me in this qualitative research study. Based upon specific qualifying criteria, I have determined that you would be an excellent participant for this study. The interview will take approximately 45-60 mins and will be conducted in-person at a location of your choosing.

Would you be interested in participating in this study?

 If yes, thank you for your interest, what will follow next is setting an interview date, time, and location. Approximately one week before the interview, I will provide you a copy of the interview questions for review.

If no, thank you for your time and your consideration. Have a great day!

APPENDIX C

Interview Recruitment E-mail Script

Good morning/afternoon <Potential Subject Name>,

My name is Danielle Jenkins and I am a doctoral candidate at the Graduate School of Education and Psychology at Pepperdine University. I am currently working on my dissertation entitled LEADERSHIP BEST PRACTICES OF FEMALE EXECUTIVES IN THE IT INDUSTRY.

The purpose of this study is to determine the best-practices that female executives employ to make them successful in leading in the IT industry. This study consists of 8 open-ended interview questions that will focus on identifying the successes and challenges that current female executives have experienced in their leadership roles. I am seeking out participants to help me in this qualitative research study. Based upon specific qualifying criteria, I have determined that you would be an excellent participant for this study. The interview will take approximately 45-60 mins and will be conducted in-person at a location of your choosing.

If you are interested in participating in this study, please let me know and we can begin the process of providing you with and informed consent form and setting-up an interview date, time, and location. Also, please note that approximately one week before the interview, I will provide you a copy of the interview questions for review.

Thank you for your time and your consideration. I look forward to hearing from you.

Danielle Jenkins
Doctoral Candidate
Pepperdine University, GSEP
████████████████████████

APPENDIX D

IRB Site Permission

[PRINTED ON RESEARCH SITE'S LETTERHEAD] - WITI-Los Angeles

[DATE]

Pepperdine University
Graduate and Professional Schools Institutional Review Board (GPS IRB)
6100 Center Drive – 5th Floor
Los Angeles, CA 90045

RE: DANIELLE JENKINS - LEADERSHIP BEST PRACTICES FOR FEMALE
       EXECUTIVES IN THE IT INDUSTRY

       To GPSIRB:

This letter is to convey that I/we have reviewed the proposed research study being
conducted by Danielle Jenkins intended to conduct research and recruit subjects at
WITI - Los Angeles and find Leadership Best Practices for Female Executives in the IT
Industry acceptable. I/we give permission for the above investigators to conduct
research at this site. If you have any questions regarding site permission, please
contact: Danielle Jenkins at (███████████ or ███████████████████████. .

Sincerely,

[INSERT AUTHORIZED AGENT'S NAME (E.G., SCHOOL PRINCIPAL, DIRECTOR,
ETC.]
[INSERT TITLE]

APPENDIX E

IRB Site Permission

[PRINTED ON RESEARCH SITE'S LETTERHEAD] - Anita Borg Institute

[DATE]

Pepperdine University
Graduate and Professional Schools Institutional Review Board (GPS IRB)
6100 Center Drive – 5th Floor
Los Angeles, CA 90045

RE: DANIELLE JENKINS - LEADERSHIP BEST PRACTICES FOR FEMALE
      EXECUTIVES IN THE IT INDUSTRY

      To GPSIRB:

This letter is to convey that I/we have reviewed the proposed research study being
conducted by Danielle Jenkins intended to conduct research and recruit subjects at
Anita Borg Institute and find Leadership Best Practices for Female Executives in the IT
Industry acceptable. I/we give permission for the above investigators to conduct
research at this site. If you have any questions regarding site permission, please
contact: Danielle Jenkins at (███████████ or ███████████████████████. .

Sincerely,

[INSERT AUTHORIZED AGENT'S NAME (E.G., SCHOOL PRINCIPAL, DIRECTOR,
ETC.]
[INSERT TITLE]

APPENDIX F

IRB Notice of Approval for Human Research

PEPPERDINE

NOTICE OF APPROVAL FOR HUMAN RESEARCH

Date: January 09, 2017

Protocol Investigator Name: Danielle Jenkins

Protocol #: 16-10-406

Project Title: Leadership Best Practices for Female Executives in the IT Industry

School: Graduate School of Education and Psychology

Dear Danielle Jenkins:

Thank you for submitting your application for exempt review to Pepperdine University's Institutional Review Board (IRB). We appreciate the work you have done on your 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 46.101 that govern the protections of human subjects.

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 an amendment to the IRB. Since 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 IRB.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite the 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 IRB as soon as possible. We will ask for a complete written explanation of the event and your written 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 IRB and documenting the adverse event can be found in the *Pepperdine University Protection of Human Participants in Research: Policies and Procedures Manual* at community.pepperdine.edu/irb.

Please refer to the protocol number denoted above in all communication or correspondence related to your application and this approval. Should you have additional questions or require clarification of the contents of this letter, please contact the IRB Office. On behalf of the IRB, I wish you success in this scholarly pursuit.

Sincerely,

Judy Ho, Ph.D., IRB Chair

PEPPERDINE

cc: Dr. Lee Kats, Vice Provost for Research and Strategic Initiatives

Mr. Brett Leach, Regulatory Affairs Specialist

Informed Consent Form

PEPPERDINE UNIVERSITY

Graduate School of Education and Psychology

INFORMED CONSENT FOR PARTICIPATION IN RESEARCH ACTIVITIES

LEADERSHIP BEST PRACTICES FOR FEMALE EXECUTIVES IN THE IT INDUSTRY

You are invited to participate in a research study conducted by Danielle Jenkins, MPA, and Farzin Madjidi, Ed.D at Pepperdine University, because you are defined as a female executive in the IT industry. Your participation is voluntary. You should read the information below, and ask questions about anything that you do not understand, before deciding whether to participate. Please take as much time as you need to read the consent form. You may also decide to discuss participation with your family or friends. If you decide to participate, you will be asked to sign this form. You will also be given a copy of this form for your records.

PURPOSE OF THE STUDY

The purpose of the study is to determine what aspiring female executives can do to prepare for executive-level positions in the IT industry. This purpose will be achieved by identifying successes and challenges that female executives have experienced while in executive-level positions, and examining how they were able to successfully employ their leadership and navigate pitfalls in executive-level positions.

STUDY PROCEDURES

If you volunteer to participate in this study, you will be asked to:

1.   Review the provided interview questions,
2.   Review the informed consent form,
3.   Answer the 9 qualitative interview questions, and
4.   Review and approve your responses to the interview questions after your responses have been transcribed.

POTENTIAL RISKS AND DISCOMFORTS

The potential and foreseeable risks associated with participation in this study include no more than minimal risks.

Possible risks/arm applicable to the subjects in the study include, but are not limited to: Potential Breach of Confidentiality; Serious – legal, psychological and social consequences that are real if there are a breach of confidentiality; Coercion based upon the relationship of the PI to the subject; Relationship between employer and employee if study being conducted in the workplace; Loss of Self-Esteem; Self-Efficacy; Boredom; Fatigue; and Negative Self Reflection.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

While there are no direct benefits to the study participants as this is a qualitative study, your responses will be used as data for a doctoral dissertation focusing on leadership development for female executives in the IT industry. Additionally, this information will help in educating future female executives in successfully advancing to executive-level positions in IT.

CONFIDENTIALITY

I will keep your records for this study confidential as far as permitted by law. However, if I am required to do so by law, I may be required to disclose information collected about you. Examples of the types of issues that would require me to break confidentiality are if you tell me about instances of child abuse and elder abuse. Pepperdine University's Human Subjects Protection Program (HSPP) may also access the data collected. The HSPSS occasionally reviews and monitors research studies to protect the rights and welfare of research subjects.

The data will be stored on a password-protected computer in the principal investigator's place of residence. The data will be stored for a minimum of three years. The data collected will be transcribed and coded for validity and reliability purposes. Upon an initial coding taking place, the data will then be provided to two carefully selected doctoral peer interviews with similar amount of training and preparation for conducting qualitative research. There will also code the information based on what they hear from the audio interview. There coding will be used as comparison to the researcher to the researcher to ensure the accuracy of what is interpreted from your provided commentary. Upon concluding the data gathering, this information will be provided to the principal investigator and any evidence deleted from their computers. You will then be provided a copy of the transcribed notes and coding to verify the information

determined from the recordings. Upon your approval this information will be used all or in part of the findings section of the dissertation.

PARTICIPATION AND WITHDRAWAL

Your participation is voluntary. Your refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study.

ALTERNATIVES TO FULL PARTICIPATION

The alternative to participation in the study is not participating or only completing the items for which you feel comfortable.

EMERGENCY CARE AND COMPENSATION FOR INJURY

 If you are injured as a direct result of research procedures you will receive medical treatment; however, you or your insurance will be responsible for the cost. Pepperdine University does not provide any monetary compensation for injury

INVESTIGATOR'S CONTACT INFORMATION

You understand that the investigator is willing to answer any inquiries you may have concerning the research herein described. You understand that you may contact Dr. Farzin Madjidi, farzin.madjidi@pepperdine.edu if you have any other questions or concerns about this research.

RIGHTS OF RESEARCH PARTICIPANT – IRB CONTACT INFORMATION

If you have questions, concerns or complaints about your rights as a research participant or research in general please contact Dr. Judy Ho, Chairperson of the Graduate & Professional Schools Institutional Review Board at Pepperdine University 6100 Center Drive Suite 500, Los Angeles, CA 90045, 310-568-5753 or gpsirb@pepperdine.edu.

APPENDIX H

Research Questions Review Form

Dear reviewer:

Thank you for agreeing to participate in my research study. The table below is designed to ensure that may research questions for the study are properly addressed with corresponding interview questions.

In the table below, please review each research question and the corresponding interview questions. For each interview question, consider how well the interview question addresses the research question. If the interview question is directly relevant to the research question, please mark "Keep as stated." If the interview question is irrelevant to the research question, please mark "Delete it." Finally, if the interview question can be modified to best fit with the research question, please suggest your modifications in the space provided. You may also recommend additional interview questions you deem necessary.

Once you have completed your analysis, please return the completed form to me via email to ██████████████████████████. Thank you again for your participation.

Research Questions Review Form

Research Question	Corresponding Interview Question
RQ1: What best practices and strategies are used by female executives in the male-dominated information technology industry?	1. What practices enabled you to obtain your executive-level position in the IT industry? a. The question is directly relevant to Research question **- Keep as stated** b. The question is irrelevant to research question – **Delete it** c. The question should be **modified as suggested**: _____ _____ I recommend adding the following interview questions: _____ _____ 2. What do you believe are the top factors that

	contributed most to your career success in the IT industry? a. The question is directly relevant to Research question - **Keep as stated** b. The question is irrelevant to research question – **Delete it** **c.** The question should be **modified as suggested**: _____ _____ I recommend adding the following interview questions: _____ _____
RQ2: What challenges are faced by female executives in the male-dominated information technology industry?	3. What is unique about the culture in the IT industry that made it challenging for you to obtain your current executive-level position? a. The question is directly relevant to Research question - **Keep as stated** b. The question is irrelevant to research question – **Delete it** c. The question should be **modified as suggested**: _____ _____ I recommend adding the following interview questions: _____ _____ 4. What are some of the most difficult challenges you faced personally or professionally along your journey in the IT industry, and how did you overcome these challenges? a. The question is directly relevant to Research question - **Keep as stated** b. The question is irrelevant to research

	question – **Delete it** c. The question should be **modified as suggested**: _____ _____ I recommend adding the following interview questions: _____ _____

RQ3: How do female executives measure their leadership success?	5. How do female executives in the IT industry measure leadership success?
	  a. The question is directly relevant to Research question - **Keep as stated**
	  b. The question is irrelevant to research question – **Delete it**
	  c. The question should be **modified as suggested**:
	
	_____
	_____
	
	I recommend adding the following interview questions:
	
	_____
	_____
	
	6. How do these measurements fit into a male-dominated industry?
	  a. The question is directly relevant to Research question - **Keep as stated**
	  b. The question is irrelevant to research question – **Delete it**
	  c. The question should be **modified as suggested**:
	
	_____
	_____
	
	I recommend adding the following interview questions:
	
	_____
	_____

| RQ4: What recommendations would female executives make for aspiring female executives in the male-dominated information technology industry? | 7. What advice or recommendation would you provide women seeking executive-level positions in the IT industry?
 a. The question is directly relevant to Research question - **Keep as stated**
 b. The question is irrelevant to research question – **Delete it**
 c. The question should be **modified as suggested**:

_____
_____

I recommend adding the following interview questions:
_____
_____

8. Is there anything else you would like to share about your IT experience that you think would be relevant to this study?
 a. The question is directly relevant to Research question - **Keep as stated**
 b. The question is irrelevant to research question – **Delete it**
 c. The question should be **modified as suggested**:

_____
_____

I recommend adding the following interview questions:
_____
_____ |