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Walden University
2015

Abstract

Success Factors for Women of Color Information Technology Leaders in Corporate America

by

Annette E. Skervin

MBA, University of Cincinnati, 2002

BS, University of the West Indies, 1986

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Applied Management and Decision Sciences

Walden University

March 2015

Abstract

The 2013 United States Census data documents the significant underrepresentation of women of color in the information technology (IT) field. Women of color (Black, Hispanic, Asian or self-classified as non-White) represent an untapped resource in an industry with a low unemployment rate, high starting salaries, and a projected 18% growth rate by the year 2022. Prior researchers have studied White women in IT and have not provided a voice to women of color leaders. The specific problem addressed was the under-representation of women of color IT leaders in corporate America. The purpose of this phenomenological study was to investigate the experiences of women of color as senior IT executives (e.g. chief information officers, vice presidents, directors, etc.) in order to understand the success factors that have contributed to their ability to attain these positions. The research questions addressed how select demographic, individual, and organizational level factors serve as predictors of the presence of women of color as senior IT leaders in corporations. A purposeful sampling approach selected 22 senior women of color IT leaders in corporate America. Data was analyzed using the transcendental phenomenological process, which aligned interview statements to the research questions and identified 2 broad themes. This study found that change needs to occur at the broader organizational level. It challenged the traditional leadership IT definition that seeks to conform women of color to the social requirements of the largely White male IT population. Social change will occur when changes are made within this organizational culture to have a broader, inclusive definition of an IT leader, and through training of all (men and women) to be transformed to this new definition.

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Dedication

I dedicate this work to my mother, Mrs. Phylis Gibbs who has been a source of unwavering love, continual inspiration and tireless support for me during this long journey; and to my father Professor William Nigel Gibbs, MD who did not live to see his daughter follow in his footsteps.

Acknowledgments

First I want to thank the Lord – I started and finished this in His strength.

It is with deep gratitude that I acknowledge my mentor, Dr. Frances Goldman for her belief in me and my research topic, her enthusiastic encouragement, her availability during this long process, and her ability to steer me back on track! Additionally I acknowledge my committee members, Dr. Banner and Dr. Sinatra for their support and guidance.

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Finally, I want to acknowledge and thank the women who contributed their time to this study. Their willingness to be interviewed, their commitment to share their stories is born out of their struggles and their desire to help other women succeed. I pray that this return on their investment will honor their voices.

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Chapter 1: Introduction to the Study

Introduction

Organizational research in the information technology (IT) field is important because IT is a high-growth sector, in terms of the number of professionals being hired and their respective salaries. The number of jobs in IT is projected to grow by 18% by the year 2022, compared to 11% for all other occupations (National Center for Women & Information Technology, 2014a). Additionally, the median annual salary for the IT professional is the second highest behind management positions.

Many computing professions are expected to grow faster than the science, technology, engineering and mathematics (STEM) average, making computer science a strong career choice for women (National Center for Women & Information Technology, 2014a). In addition, STEM has nationwide importance to the United States economy. President Barack Obama described science as "more essential for our prosperity, our health, our environment, and our quality of life that it has ever been before" (Obama, 2009).

Computer science and computer engineering degrees yielded two of the highest average starting salaries in 2013 (PayScale, 2014). The gender wage gap is also smaller in computing occupations with women earning as much as 81% compared to men with the same education, experience and position. The overall gender wage gap, as reported in 2012 United States Census data, is 73.2% for those in the professional and related occupations (United States Bureau of Labor Statistics, 2013).

For those in computer and information systems management, the gap is smaller. Women earn as much as 87.8% of a man's salary (United States Bureau of Labor Statistics, 2013). This is an important development showing that income gender equality may be within reach in computing professions. In addition, the unemployment rate for IT careers is low. In March 2014, overall unemployment in the United States was 6.6%, while in IT the overall rate was 2.8%, with a rate of 3.7% unemployment for women (United States Bureau of Labor Statistics, 2014a).

The low representation of women in IT indicates that women may not be selecting careers in computing at the same rate as other sectors (United States Bureau of Labor Statistics, 2014b). This trend of low entry-level numbers for female computer science graduates eventually results in fewer managers and executives available for the CIO position. Fourteen percent of CIOs report that they do not have any women employed in their IT departments (Harvey Nash, 2013; United States Bureau of Labor Statistics, 2014b).

In an economic environment marked by high unemployment rates, organizational downsizing, and offshoring, there is still a high demand for technology jobs in the United States (National Center for Women & Information Technology, 2014a). One out of ten jobs in the United States is in STEM. High-tech companies have tried to satisfy the demand by importing skilled candidates from outside of the United States. To this end, these companies have consistently lobbied the United States government to increase the annual number of available H-1B visas (required visas for non-United States citizens to

work in the United States). In 2014 the annual cap for this program was reached in five days (Johnson, 2014).

These jobs are also high paying, with STEM jobs earning approximately 1.7 times the national average (Jones, 2014). Information technology jobs receive the highest wages in this category. Science, technology, engineering and mathematics jobs are therefore ideal options for women and ethnic minorities seeking well-paid careers. Women and ethnic minorities represent an untapped potential to satisfy this demand for trained resources (Ong, Wright, Espinosa, & Orfield, 2011). Women currently outpace men in obtaining degrees and this trend is reflected in all ethnic groups and at all degree levels (National Center for Women & Information Technology, 2014; National Science Foundation, 2013). However, for computer science and information science undergraduate degrees, the numbers are staggeringly low, only 20% of all the computer science and information science undergraduate degrees are earned by women

Some researchers had assumed that women and girls opt-out of STEM degrees because of lack of interest in these subjects or because they do not have the ability to be successful (Dey & Hill, 2007). However, researchers have confirmed that college women have higher GPAs in every college major, including in mathematics and science degrees (Dey & Hill, 2007). Socially, girls are still receiving the message that it is less acceptable for them to succeed in STEM subjects. In addition, girls believe that in order to be successful in these male dominated subjects and fields, they need to be exceptional. Therefore they assess themselves as being less adept in their STEM skills, but hold themselves to higher standards for success (Hill, Corbett, & St Rose, 2010).

In terms of ethnic composition of undergraduate students in computer information science, the percentage of women of color who earn bachelor's degrees in computer science follows the pattern of low percentages of degrees awarded to women in general (National Center for Women & Information Technology, 2014; National Science Foundation, 2013). For the purpose of this study, a woman of color belongs to the ethnic group of Black, Hispanic, Asian or has otherwise classified herself as non-White (not all women of color define themselves in a single category). The culture of STEM departments contributes to the attrition of women who have the interest and ability to succeed. They feel outnumbered and that they don't fit in (Espinosa, 2011). Some researchers (Espinosa, 2011; Ong et al., 2011) have found that women of color were more likely to stay in STEM degree programs and graduate if they:

- Participated in undergraduate research programs.
- Participated in STEM clubs.
- Had professors who helped them achieve their goals of contributing to society.
- Had professors who included coursework that made STEM relevant to their lives as women.
- Attended institutions that provided a supportive academic environment for women.
- Participated in peer study groups to discuss classroom material.

The underrepresentation of women continues in the workforce (National Center for Women & Information Technology, 2014a). Despite the higher salaries and low unemployment rates, midcareer female IT leaders are leaving the private sector at twice

the rate of their male peers. Most of these women who leave the private sector workforce are leaving after 10-20 years in the industry. The majority of these women remain in the computing field, opting to enter the public sector or to become entrepreneurs. Others move to a nontechnical field. The result is that women leave the workforce before reaching their top earning and leadership potential (Hewlett et al., 2008).

There is a wealth of leadership research on the *glass ceiling* experienced by women, the phenomenon experienced by women as they seek to progress to the executive levels of management in corporate America but experience an almost invisible barrier preventing them from achieving these positions (Anyaogu, 2013; Bruckmüller & Branscombe, 2010). Researchers have identified several barriers to advancement experienced by women including

- Gender stereotyping.
- Exclusion from influential networks in the work environment.
- Disempowering encounters that removes needed validation and support.
- *Tokenism*–the experience of being the only one or representative of their ethnicity or gender.
- Lack of personal networks of community.
- Inexperience in navigating through internal politics.
- Not receiving the opportunity to build critical experience and exposure through visible, challenging assignments or line experience (Byrd, 2009; Cooper, 2013; Eagly, A H & Carli, 2003; Gibson, 2011; Kilian, Hukai, & McCarty, 2005; Scales, 2011; Simmons, 2009; Tarmy, 2012; Toson, 2012;

von Hippel, Wiryakusuma, Bowden, & Shochet, 2011; Wellington, Kropf, & Gerkovich, 2003).

Women in IT give several reasons for leaving the technical workforce such as: unconscious bias, isolation, supervisory relationships, promotion processes, hostile working environments, not getting credit for their work, exclusion from men-only networks, extreme job hour expectations, a gendered approach to risk-taking and rewards, and competing life responsibilities (Adams & Weiss, 2011; Alford, 2011; Anyaogu, 2013; Hewlett et al., 2008; Hewlett, Sherbin, Dieudonné, Fargnoli, & Fredman, 2014; Johnson, 2013; National Center for Women & Information Technology, 2014a; Tahmincioglu, 2012).

An example of unconscious bias is in the wording of job descriptions which may include a predominance of masculine associated language, include references to benefits that are favored by men (e.g. foosball friendly, Nerf-filled), or describe leadership styles normally associated with men (National Center for Women & Information Technology, 2014b). Including diversity criteria like the ability to work on a diverse team or with a diverse group of people shows the support of, and importance to, the organizational culture. Another opportunity to increase the number of women and ethnic minority applicants is to expand advertising and recruiting efforts to areas with diverse candidates. Unconscious bias may also appear in the selection teams, the slate presented for promotions, and in supervisory relationships (National Center for Women & Information Technology, 2014b).

The male dominant culture of the technology field can be perceived as hostile to women (Hewlett et al., 2008, 2014). Women in the Athena study consistently spoke of environments where raunchy jokes and a locker room culture prevailed (Hewlett et al., 2008). Hewlett et al. (2008) found that when women met peers for the first time, it was often assumed that they were an administrative assistant or the most junior person in the room.

The men in the male dominant culture also promoted an attitude of discounting or silencing the contributions of women, with the immediate assumption that ideas of these women would not be valid or technically sound (Hewlett et al., 2008, 2014). Hewlett et al. (2008) also found that many of these women assumed apparel and attitudes that were more masculine or underplayed their femininity in order to make their male counterparts more comfortable. However women found that this behavior could backfire as it contradicted the gender expectations of their male colleagues.

Isolation as the token woman without support or mentors impacted women in IT jobs in the private sector (Adams & Weiss, 2011; Alford, 2011; Hewlett et al., 2008, 2014; Johnson, 2013). Forty percent experienced a lack of role models, 67% reported a lack of mentors, and 84% reported a lack of sponsors (Hewlett et al., 2008). Isolation results in low job satisfaction, engagement, and contributes to women leaving their jobs. The Athena Study found that for IT women, a marginal 10% increase in the number of women in these male-dominated functions resulted in a dramatic change in the organizational culture (Hewlett et al., 2008). Women felt that they could access role models, and talk about work and life balance issues (Hewlett et al., 2008). In addition,

with a sponsor, 70% of women were more likely to have their ideas endorsed (Hewlett et al., 2014).

Women in science, engineering, and technology (SET) often lack clarity about their career paths (Adams & Weiss, 2011; Alford, 2011; Hewlett et al., 2008; Johnson, 2013). There is the difficulty of identifying sponsors, the impact of remaining in a particular job position for long periods of time (which for women can become an indicator of their low potential for promotion), or being forced to make lateral moves which negatively impacted their career progression.

Men when faced with a crisis, can often take extreme action with high risks to avoid a potentially disastrous occurrence (Hewlett et al., 2008). In these situations they usually have engaged a superior to provide a professional *safety net* or *air cover* should the attempt fail, or to manage any collateral damage from their actions. Air cover is a common industry term, used several times by the research participants, to describe the influential support and protection extended by sponsors or senior leaders to their protégé. This may include providing feedback on skill gaps required at senior levels, providing advice, expanding the perception of their capability, defending them against criticism, extending their influence and power to break through obstacles, etc. Men have sponsors who also receive publicity as the man's actions are highly celebrated and rewarded (Hewlett et al., 2008, 2014).

Most women in IT do not have this type of sponsor (Hewlett et al., 2008, 2014). As a result, they can develop a reputation for being risk adverse. Those who do take risks, do so at the peril of not being given the same type of support or air cover should the risk

fail. Women also tend to take a more systemic approach, by working on managing projects in a way that reduces the need for crisis management (Hewlett et al., 2008). In addition, innovation is rewarded in technical fields (Hewlett et al., 2008, 2014). Many women however, find themselves pushed into the execution roles as their ideas are discounted, overlooked, and in some cases co-opted by the male peers. Not withstanding the impact on morale, this practice also impacts the woman's career mobility (Hewlett et al., 2008, 2014).

There are higher job pressures in SET fields than in other sectors, with expectations that employees in these fields will need to spend long hours, be available at all hours of the day or night, work on or manage a global team, and work extensive office hours in-person (Adams & Weiss, 2011; Hewlett et al., 2008, 2014). In the case of IT this could occur because of the need to be on call for a manufacturing plant system that runs at all hours of the day, or working with a development team based in India.

When women start to have families, some researchers conclude that women appear to make the decision to stay in jobs that do not require travel, that they may request positions at the same level for longer periods, or accept lateral moves to jobs that impact their promotion trajectory (Adams & Weiss, 2011; Hewlett et al., 2008). Unfortunately during times of downsizing or reorganization, without supportive advocates, sponsors, or access to a traditionally masculine network, their jobs face a higher risk of elimination than their male counterparts (Adams & Weiss, 2011; Hewlett et al., 2008, 2014).

Although researchers have studied barriers to advancement for women in IT (Adams & Weiss, 2011; Alford, 2011; Cezar, 2002; Drury, 2008; Johnston, 2012; Reid, M. V., 2007), they have either focused on White women, or grouped the data on ethnic minorities in IT without being gender specific (Taha, 2013). In 2013, 36% of employed IT women were women of color (United States Bureau of Labor Statistics, 2014b). Of the total number of women in the 2013 IT workforce, 11% of the computing workforce consisted of Black women, 19% were Asian women, and 6% were Hispanic women (National Center for Women & Information Technology, 2014b).

While the percentage of Asians is increasing, the percentage of Black women and Hispanic women has been falling (National Center for Women & Information Technology, 2014b). It is possible that the lower numbers of Black women creates additional isolation. Black women working in IT report more negative experiences such as lack of career paths and feeling stalled in their careers than White or Asian women (Hewlett et al., 2008).

Women of color face marginalization resulting from both gender and ethnicity (Anyaogu, 2013; Campbell, 2011; Davis, 2012; Doss, 2011; Gibson, 2011; Giscombe & Mattis, 2002; Ibarra, 1995; Iwamoto & Liu, 2010; Williams, 2008). Although there are a few studies that have examined the intersection of gender and ethnicity on academic success in STEM (Espinosa, 2011; Ong et al., 2011), and early STEM career choices for women (Hewlett et al., 2008; Wright et al., 2010) no studies were found that looked at the success factors contributing to the attainment of senior management positions by women of color in STEM (Wright et al., 2010).

The ethnic experience of the glass ceiling has been given the industry terms *concrete ceiling* for Black women, and the *bamboo ceiling* for Asian women (Anyaogu, 2013; Campbell, 2011; Davis, 2012; Doss, 2011; Gibson, 2011; Giscombe & Mattis, 2002; Ibarra, 1995; Iwamoto & Liu, 2010; Williams, 2008). Women of color face barriers such as the ability to gain access to influential others, get mentors or sponsors, receive exposure from high visibility assignments, gain acceptance in the informal networks of influential colleagues, the ethnic prejudicial assumptions of colleagues, and the absence of role models (Catalyst, 2003a, 2003b, 2004; Giscombe, 2011; Thorpe-Moscon & Pollack, 2014). For example, a 2014 report stated that only 58% of women of color have access to mentors or sponsors who are Chief Executive Officers (CEOs) or senior level executives. This is in comparison to 71% of White women and 77% of White men (Thorpe-Moscon & Pollack, 2014).

Problem Statement

The United States Department of Labor projected that by the year 2016 there will be 1.5 million computer specialist job openings in the United States, with job opportunities growing five times faster than other areas (National Center for Women & Information Technology, 2014a). The demand for these jobs is outstripping the supply. As an industry with a low unemployment rate, high starting salaries, and a projected 18% growth rate by the year 2022, IT jobs are ideal options for women and ethnic minorities seeking well paid careers.

However, women and ethnic minorities are significantly underrepresented in the leadership levels of the IT field (Harvey Nash, 2013; United States Bureau of Labor

Statistics, 2014). Despite the higher salaries and low unemployment rates, midcareer female IT leaders are leaving the private sector at twice the rate of their male peers. Most of these women who leave the private sector workforce are leaving after 10-20 years in the industry.

The specific problems that this research addressed were the under-representation of women of color IT leaders in corporate America. This study will add to the body of knowledge by providing insights on successful retention practices for organizations, and individual strategies for IT women of color seeking leadership positions.

Purpose of the Study

The purpose of this qualitative, phenomenological study was to investigate the experiences of women of color who are senior IT executives (e.g. Chief Information Officers, Vice Presidents, Directors, etc.), in order to understand the success factors that have contributed to their ability to attain these positions, and their decision to remain in IT. The criterion for inclusion of participants in the study is women of color (Asian, Black, Hispanic or Non-White females) that are in leadership positions in IT in companies across North America. Published data for the size of this population does not exist.

The research focused on the similarities and differences within a purposeful sample of 22 women of color in Corporate America. It also addressed how select demographic, individual, and organizational level factors serve as predictors of the presence of women of color as senior IT leaders in corporations. In addition to addressing the research questions, the results gave a voice to this group of women who are

underrepresented in the IT workforce and in the peer reviewed research. It will also contribute to social change by providing insights on the organizational cultural changes required to move beyond meeting recruiting targets, to counteract the attrition of IT women from the field, and to build the women of color leadership pipeline.

Research Questions

Although prior research has studied organizational barriers to recruiting and developing IT women, there is a gap in the literature on the common leadership success strategies that IT women of color leaders have employed to attain senior level positions. To address this gap in the research, and explore the lived experience in IT women of color leaders in corporate America the following research questions were examined:

1. How do women of color in IT leadership roles perceive their journey to obtaining and sustaining their position?
2. What are the strategies and skill sets that these women of color leaders believe necessary to achieve success in IT organizations? What leadership skills and styles do these women of color IT leaders believe contributed to their success within the organization?
3. What recommendations would they provide to aspiring women of color in IT organizations?

Theoretical Framework

The theoretical framework for this research is the impact of gender socialization and gender identity on perceptions of leadership effectiveness and critical race feminism (CRF). Critical race theory (CRT) uses a perspective of the Whites as the dominant

standard to analyze racial dynamics, including power relationships and the experiences of the people of color (Denzin, 2005; Petitt, 2009; Taylor, 1998). The act of singling out Blacks and other people of color as worthy of suppression by Whites embodies the lived experiences of racism–an experience that permeates social institutions (Creswell, 1998; Taylor, 1998).

A branch of CRT is critical race feminism (CRF), that focuses on the multiple identities, consciousness, and discrimination faced by women who live in the intersection of race and gender (Evans-Winters & Esposito, 2010). The premise is that the experiences of women of color are unique and not just an additive of those inequities and responses experienced by White women or men of color (Livingston, Rosette, & Washington, 2012; Peterson, Philpot, & O'Shaughnessy, 2007; Sanchez-Hucles & Davis, 2010).

Gender Socialization, Gender Identity and the impact on Leadership Effectiveness

It has been the position of female theorists that women matured in a crucible of subordination, which resulted in their development of adaptive traits and unique strengths (Chodorow, 1999; Gilligan, 1993; Miller, 1986). Gender specific roles and denial of attachment were perpetuated through motherhood, and informed the child's understanding of masculinity and power (Chodorow, 1999). As an adult this gender socialization impacts the perceived effectiveness of women in the corporate environment, and the definition and use of power (Miller, 1986).

In the study of human development, theories based on biological, sociocultural, cognitive, moral, and physiological processes sought to address the fundamentals of

personal sense making and human behavior. The crucible of human development and socialization provided the foundation of the formation of gender identity. The theoretical models founded in the socialization of gender, including social structural theory, took an approach of gender identity formation through nurture versus nature (Eagly & Wood, 1999; Kleyman, 2000). In order to understand the impact of socialization on gender identity, and the moral and social influences on human behavior, the principle tenets of Kohlberg (1969), Perry (1999), Chodorow (1999), Gilligan (1993), and Miller (1986) are summarized here but explored in detail in Chapter 2.

Kohlberg supported a neo-Kantian definition of morality, one based on cognitivism (or rationalism) where the reasons for the actions behind moral judgments are considered separate from motives or emotions. (Kohlberg, Levine, & Hewer, 1983). He posited that moral judgments were *universalizable* (others would have the same perspective in response to a dilemma) and *prescriptive* (any human being would be obligated to take action).

Kohlberg identified some universal developmental trends in moral judgment. His work showed the impact of cognitive development on moral and emotional development. He also found that the relative importance of one's environment or social group to the resolution of moral dilemmas varies at each of these moral developmental stages (Kohlberg, 1969). In the end:

> while moral judgment is only one of many predictors of action in moral conflict situations, it can be a quite powerful and meaningful predictor of action where it

> gives rise to distinctive ways of defining concrete situational rights and duties in socially ambiguous situations. (Kohlberg, 1969, p. 396-397)

Kohlberg's (1969) work provides a framework to interpret the development of moral judgment in men – and the male-dominated culture where the woman in IT needs to learn to exist and thrive. In a traditionally male-dominated IT culture, this framework provides a justification for men to maintain an environment that favors the decision-making processes focused on individual achievement versus a morality of connection favored by Gilligan (1993) and traditionally employed by women. As discussed in the literature review, women in IT are placed in academic and workplace environments that support the individual, technically demonstrative, male-ego. In contrast, women build teams, relationships, and connections with the business in order to build solutions and go beyond implementing the best coded program.

From Perry's research on the intellectual and moral development of college students a nine-stage schema emerged to systematize the experiences of these young adults. Citing foundational assumptions from the modern contextual pragmatism of Dewey, White, and Quine, Perry identified the underlying emphasis on *purpose* at each developmental position. Perry (1999) stated that one could interpret his schema as an additional Piagetian period or the period of responsibility.

Perry's (1999) research subjects were college students, selected in their freshman year, and interviewed every year during their college undergraduate career. His research confirmed the progressive development of the thinking process during the college years.

It also documented the students' transition from their original dualistic, pre-college world to the pluralistic college environment, and their response to this adjustment.

Perry's (1999) research provided an extension to Piaget's developmental cycle, completing the moral and intellectual developmental transition from adolescence to young adulthood. His work showed that in a given cultural setting, moral and intellectual development includes addressing various moral issues (Perry, 1999). It also provided the epistemological foundation for subsequent developmental work by feminist theorists in human development such as Gilligan (reviewed in this paper).

Agreeing with Perry's research, Gilligan concluded that both men and women experienced this transition from absolutism to relativism, but the definition of absolutes is different for the genders (Gilligan, 1993). In addition, at the end of this journey, women developed a different context for moral decision and judgment. Belenky, Clinchy, Goldberger, and Tarule (1997) credit Perry's chart as foundational for their subsequent evaluation of the development of female students. In their study, they highlighted Perry as one of the few male voices included in their investigation of the unique ways women build and develop their concepts of knowledge and truth (Belenky et al., 1997).

Chodorow (1999) relied on psychoanalytic theory to analyze the family structure and the critical role that mothering has on gender and personality development. Her work focused on the social and economic implications of the development and reproduction of mothers. Using the psychoanalytic account of personality development, Chodorow (1999) showed that mothers reproduced themselves; they produced daughters who in turn want to become mothers.

This went beyond the biological assumptions by non-feminist theorists, and viewed the development of women as mothers and men (as not-mothers) as sociological. Chodorow (1999) found that the developmental suppression of nurturing behavior that occurred in men did not occur in the mother-daughter relationship. The relationship between mothers and sons, and the resulting repression of the nurturing behavior prepared these men for corporate and public roles (Chodorow, 1999).

Psychoanalysts posited that the personalities of children become socialized to their gender norms and roles in society through their participation in the family institution (Chodorow, 1999). Object-relations theorists found that growth at the psychological and physiological levels is determined through a child's relationship with his or her environment. In applying object-relations theory, psychoanalytic theory and personal ego theory to psychoanalytic clinical case studies Chodorow (1999) showed that the difference in childhood developmental patterns leads to gender socialization. She also found that it continued to influence one's response as an adult. Chodorow's reinterpretation of traditional psychoanalytical theory provided a framework for understanding male and female development, relational potential, and psychological capacities.

However, by implying that all women want to mother and all men are non-nurturing, absent fathers, Chodorow (1999) has been criticized for being sweepingly dogmatic. In recent times, there has been an emergence of public campaigns encouraging men to spend more time with their children. There are also women who have elected not to have children in their pursuit of other interests.

Although the environment of the 1970's and the emergence of women leaders in the public sector and workforce influenced Chodorow's (1999) research at that time, her interpretation of the family structure remains relevant. Society still expects full-time working mothers to assume the role of primary caregiver–a role that continues to be developed and enforced by the mother and her partner. Chodorow (1999) recommended fundamental changes to the parenting role, in order to provide equal participation by both partners. Only then can the family produce sons that nurture, and daughters who are equipped to function in the corporate environment.

Research on the development of women has been largely excluded from the theoretical account of human development (Gilligan, 1993). As a result there was a need to develop an understanding of the evolution of a woman's sense of self and moral formation. Gilligan (1993) sought to highlight the gaps in a theoretical framework formed through research on men and extrapolated to the development of women.

She found that these traditional theories for human development, built on the concept of separation of self, were invalid for the female experience (Gilligan, 1993). This was both the separation of men from women, and the apparent selflessness of women who abandon their own needs while catering to those of others. Her research provided a new theoretical framework to examine the development of a woman's identity as an adolescent and an adult (Gilligan, 1993).

Gilligan (1993) determined that there was gender alignment between the morality of rights (masculine) and the morality of connection, relationship, and care (feminine). This allowed women to preserve a sense of identity bound in their ability to maintain the

relationship or connection. For women, the concept of interconnection was a part of their identity. As a result their interpretation of morality made room for care and responsibility in relationships (Gilligan, 1993). The moral judgment of women was not absolute, and was more tolerant as it extended beyond the focus on the individual, to that of others and themselves. Developmentally, women recognized the importance of attachment and connection in maintaining the human life cycle.

Gilligan's greatest critic was Kohlberg (1983) and his supporters, who acknowledged the impact of relationships and care on moral judgment, but denied its existence as a separate type of morality or process for judgment. It was Kohlberg's (1983) belief that women would be motivated to move to a higher stage of moral development if they recognized the importance of advancing to a morality based on justice–like men. However, Kohlberg's method was invalid for women, who re-interpreted rather than addressed the Kohlberg dilemmas. Their response, based on their new interpretation, explained the (relatively low) position on his scale (Gilligan, 1993).

Gilligan's (1993) research revealed that the concepts of human development described by theorists such as Freud, Piaget, or Kohlberg could not sufficiently encompass the development of women. Challenging Kohlberg's model of morality based on judgment, Gilligan (1993) posited that "by changing the lens of developmental observation from individual achievement to relationships of care, women depict ongoing attachment as the path that leads to maturity" (Gilligan, 1993, p. 170). This is a path that Gilligan continued to chart for the developmental stages of women, and one that led to the reinterpretation of the experience of women in her own voice.

Miller's (1986) framework for human development was the paradigm of relationships created in an environment of permanent inequality. She posited that one group (men) has identified itself as dominant over another group (women) based on a criteria of gender ascribed at birth. Men, as the dominant group (a) defined specific roles for women; (b) impeded the development of women in roles that the dominant group occupies; (c) described the unique talents of women using terminology of weakness and inferiority; and (d) encouraged women to occupy roles that they, the dominant group, did not want to hold. Additionally, in this environment of permanent inequality, the dominant group had access to all the authority and determined the acceptable uses of power (Miller, 1986).

Miller (1986) found that women, as the subordinate group learned to accept their social position and supported it by confirming the positive traits of men. To support this position of inferiority, men labeled the strengths and differences of their subordinate class (women) as defective or substandard. Women were also discouraged from pursuing opportunities for their further development, by insinuating that investment in self-development would destroy the possibility of acquiring and maintaining close relationships (Miller, 1986).

Women develop through affiliation. Male society typically overlooked this developmental process since it was different from their own and they did not understand it (Miller, 1986). This development through affiliation caused women to develop a context for connection and relationships, and is core to the well being of women. For men, however, affiliation and connection is a threat to their masculinity. They delegated

the roles of understanding and serving the needs of others to the subordinate class (women). To perform those activities of care and connection would be equivalent to becoming a woman, or in effect, to losing their masculinity and becoming powerless (Miller, 1986).

There are gender differences in the development of the ego. Miller (1986) found that the psyche of women is permeable, that is their ego boundaries are less rigid than men. Freud interpreted this as women having a less-developed super-ego. However since the developmental experiences of women differ from men, particularly in their interpretation and response to their reality, it is natural that their ego and super-ego, formed in relation to their reality, would be different.

Miller (1986) found that the reality of women was that of connection and relationships. For women, this development of an identity of connection provided less distinct boundaries between themselves and the *other*, particularly the interpretation of their needs as the needs of the *other*. In contrast, men are informed by a reality of separation and autonomy. They formed distinct boundaries between the *I* and the *other* (Miller, 1986).

The development of humans was influenced by their environment which also impacted their childhood relationships where gender development and power socialization occurred (Chodorow, 1999; Miller, 1986). The environment continues to impact the maturation of college students or young adults as they develop morally and intellectually (Perry, 1999). Although both Chodorow (1999) and Miller (1986) looked at socialization from the perspective of early developmental relationships, Chodorow's

work focused on the mother-child relationship and its influence on gender development, while Miller used the contextual framework of male cultural dominance.

Women desire and need power to succeed on a personal and political level (Miller, 1991). Viewed as positional subordinates by men, women have battled gender stereotypic expectations and internal fears of power in leadership positions. As nurturers of others, women have had to confront their fear of being seen as selfish, destroying relationships, and destroying their sense of identity when they pursued and used their power (Miller, 1991). Power through cooperation contradicted the masculine norm of achieving results by dominance. However, women have practiced and developed this skill in the family environment where cooperation has been their only method for achieving results. Therefore, for women, cooperation is power (Miller, 1986).

In their development as men, boys were taught that they are members of a superior group with others to serve and support them (Miller, 1986). Boys were taught to be rational and to relegate emotions to the subordinate group (women). Unlike women, cooperativeness for boys and men resulted in a sense of loss or giving up (Miller, 1986). Men, as the dominant group, were taught to acquire and dominate with win-lose consequences. This characteristic of power has implications in the comparative effectiveness of men and women in the workplace.

In conclusion, this maturing of women in a crucible of subordination resulted in the development of adaptive traits and unique strengths. It impacted the social expression of gender roles, the perceived effectiveness of women in the corporate environment, and the definition and use of power (Miller, 1986). This is discussed in Chapter 2. The critical

race feminism lens and socialization of gender identity lens will be used to interpret the lived-experience of the women of color IT leaders participating in this research

Nature of the Study

The phenomenological approach describes the meaning of the experiences of a group of individuals who lived (or are living) through a particular phenomenon e.g. grief, isolation, or loneliness (Creswell, 1998; Moustakas, 1994; van Manen, 1990). By using this method, I studied and explored the lived experiences of the female IT leaders in this study, to understand the meaning for these participants, that is their internalization of these experiences and the impact it has had on their development as a leader. I also used it to understand the context–for example personal, organizational, societal–of their experience, and to uncover information that provided an understanding of the process by which the events took place.

In this methodology, the participant is involved in the development of explanations; therefore, it is the appropriate tool for research within leadership, diversity, feminism, and women studies. Phenomenology has been used to explore the perspectives of leadership expression within organizations, and to obtain a deep understanding of the problem (Creswell, 1998; Moustakas, 1994; van Manen, 1990). The criterion for inclusion of participants in the study was IT women of color leaders with titles of Principal Consultant, Associate Partner, Partner, Senior Manager, Director, Senior Director, Vice President, President, Chief Technology Officer (CTO) or Chief Information Officer (CIO) who are working (or have worked in) corporate America.

The study used a purposeful sampling approach to identify research participants. Specifically, the purposeful sampling strategy selected was homogenous sampling to find potential candidates. I started with my current network to identify women who met the criteria. Upon receiving approval from the IRB, I conducted one-hour interviews, and participants were provided the option of scheduling a 30-minuite follow-up call for data verification and validation. Participants were asked to sign a consent form and complete a demographic questionnaire before the interview call. Nineteen interviews were conducted via a teleconference call, and three interviews were conducted in-person.

The interview protocol selected was an unstructured interview. In order to guide the discussion, a few broad, topical questions or prompts, were developed (see Appendix C). These questions were used to generate a rich, complete description of the participants' experience with the phenomenon. In addition, archival data was collected via publicly available reports, biographies, press releases, company websites, published books and articles, resumes, etc. This was used to provide additional information on their leadership journey and give additional support for triangulation during analysis.

All interviews were recorded, transcribed and reviewed for accuracy. In addition participants were given the opportunity to receive a copy of their interview transcript for review. The participant reviewed the interview transcripts for accuracy and verification. At each stage the participant was given the option to delete or change all, or part of their interview. Data was analyzed by following the core processes in transcendental phenomenological data analysis, specifically epoche, transcendental-phenomenological

reduction, imaginative variation, and synthesis of meanings and essences (Leedy & Ormrod, 2005; Moustakas, 1994; Punch, 1998).

Epoche is the process of setting aside one's prior judgment and knowledge in order to be open to understanding the phenomenon in a fresh, unbiased manner. I started by suspending judgment (epoch), bracketing or separating out my preconceptions about the phenomenon and focusing on understanding the phenomenon only through the experiences of the individuals. In line with the recommendation of Van Manen (1990) and Leedy and Ormrod (2005) I bracketed my own understanding, beliefs, biases, theories and assumptions by developing a full description of my experience with the phenomenon in order to surface them and make them explicit.

Transcendental-phenomenological reduction is used to break apart and examine each aspect or component of the phenomenon. These individual units or experiences are then woven into a full textural description of the phenomenon (Moustakas, 1994). Imaginative variation is the process of identifying and synthesizing the structural underpinnings and essence of the experience by sifting through the cognitions that relate to the experience and transforming them into a structural description (Moustakas, 1994).

Taking the textural descriptions developed during transcendental-phenomenological reduction, I started by varying the structural meanings of the textural meanings in order to identify the underlying themes or contexts that triggered the emergence, thoughts and feelings for the phenomenon. This was followed by looking for examples that illustrated the structural themes and helped to support the development of a structural description of the phenomenon (Creswell, 1998; Moustakas, 1994).

NVivo software was used to support the data analysis – to capture information from interview transcripts, to conduct pattern based coding of the text, to uncover trends or connections, to visualize the data, and to present the findings.

Definitions

- *Air Cover:* As defined by the research participants, is an industry term used to describe the influential support and protection extended by sponsors or senior leaders to their protégé. This may include providing feedback on skill gaps required at senior levels, providing advice, expanding the perception of their capability, defending them against criticism, extending their influence and power to break through obstacles, etc.
- *Asian or Pacific Islander*: "All persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands. This area includes, for example, China, India, Japan, Korea, the Philippine Islands, and Samoa" (U.S. Equal Employment Opportunity Commission, n.d.).
- *Black (Not of Hispanic origin)*: "All persons having origins in any of the Black racial groups of Africa" (U.S. Equal Employment Opportunity Commission, n.d.).
- *Computer and Information Technology Occupations:* Computer and Information Research Scientists, Computer Network Architects, Computer Programmers, Computer Support Specialists, Computer Systems Analysts, Database Administrators, Information Security Analysts, Network and

Computer Systems Administrators, Software Developers, or Web Developers (United States Bureau of Labor Statistics, 2014c)

- *Glass Ceiling:* The phenomenon experienced by women as they seek to progress to the executive levels of management in corporate America but experience an almost invisible barrier preventing them from achieving these positions (Anyaogu, 2013; Bruckmüller & Branscombe, 2010).
- *Hispanic*: "All persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race" (U.S. Equal Employment Opportunity Commission, n.d.).
- *Micro-inequities:* "tiny, damaging characteristics of an environment, as these characteristics affect a person not indigenous to that environment. They are distinguished by the fact that for all practical purposes one cannot do anything about them; one cannot take them to court or file a grievance. They are actions which, reasonable people would agree, are unjust toward individuals, when the particular treatment of the individual occurs only because of a group characteristic unrelated to creativity and work performance, (for example, sex, race, religion, age, or country of origin)" (Rowe, 1990, pp. 4 - 5).
- *Officials and managers*: "Occupations requiring administrative and managerial personnel who set broad policies, exercise overall responsibility for execution of these policies, and direct individual departments or special phases of a firm's operations" (U.S. Equal Employment Opportunity Commission, n.d.).

- *Other female:* Women of color who declined to be identified by a particular ethnic category.
- *Professionals*: "Occupations requiring either college graduation or experience of such kind and amount as to provide a comparable background" (U.S. Equal Employment Opportunity Commission, n.d.).
- *Senior leaders in Information Technology:* Leaders with titles of Principal Consultant, Associate Partner, Partner, Senior Manager, Director, Senior Director, Vice President, President, Chief Technology Officer (CTO) or Chief Information Officer (CIO) who are working (or have worked in) corporate America.
- *Tokenism:* is the "framework developed for conceptualizing the processes that occur between dominants and tokens: visibility (tokens capture a disproportionate awareness share), polarization (differences between tokens and dominants are exaggerated), and assimilation (tokens' attributes are distorted to fit preexisting generalizations about their social type)" (Kanter, 1977).
- *White (Not of Hispanic origin)*: "All persons having origins in any of the original peoples of Europe, North Africa, or the Middle East" (U.S. Equal Employment Opportunity Commission, n.d.).
- *Woman of Color:* A woman belonging to one of the following ethnic groups – Asian, Black, Hispanic or Other female.

Assumptions

As with any research, specific assumptions have been made:

- Participants freely shared their experiences in a factual and complete manner. This required rapport and trust to be quickly generated between the researcher and the participant, and the ability for the participants to critically reflect upon the meaning of the experience and communicate that effectively. I assumed that these participants, who are used to portraying strong, confident pictures of themselves, were open and vulnerable in the discussion of their leadership experiences particularly in the discussion of those areas that were difficult or challenging.
- The phenomenological framework selected was the best lens to explore the experience of these ethnic minority female executives. I also assumed that there would be some similarities across the experiences of these ethnic minority female executives that could be integrated into common themes, and contribute to social change within companies.

Scope and Delimitations

The focus of this research was senior women of color IT leaders within corporate America. There are successful women of color who are IT leaders working in the public sector, in entry level positions, or in supervisory positions within corporate America. However the scope was limited to those with specific job titles in order to create a somewhat homogenous group in terms of leadership skills, leadership proficiency and career trajectory. In considering the research methods, case studies and phenomenology

were explored as potential options. The phenomenological approach was selected over case study in order to provide a broader analysis of the essence of the experience of these women of color.

Limitations

The research sample while purposeful was also restricted by the availability and access to women in the target population. Using my current network, I identified participants that met the research criteria. The targeted sample size for this study was 15 participants, but in order to mitigate the risk of cancellations or calendar conflicts, I scheduled 22 interviews. All the participants kept their scheduled appointments, and as a result I had the opportunity to expand the final participant pool to 22 interviews. The distribution of ethnic groups within this sample size limited the number of broad generalizations for specific ethnic groups of women in IT, but the data collected provided the opportunity to identify common themes, and success factors that can be addressed in follow-up descriptive, explanatory or quantitative research.

Significance

This dissertation is expected to contribute to the research on what is known about female leaders in the IT profession by identifying factors instrumental to the success of women of color in leadership positions, while also making meaning of their experiences in the field. It contributes to a body of knowledge that analyses such phenomena from a gender identity perspective and critical feminist theory lens, while examining the impact on perceived leadership effectiveness.

Companies are beginning to experience a shortage of SET talent. The United States Department of Labor projects that by the year 2016 there will be 1.5 million computer specialist job openings in the United States, with job opportunities growing five times faster than other areas (National Center for Women & Information Technology, 2014a). The demand for these jobs is outstripping the supply.

The Hewlett et al. (2008) study predicts that just bringing back, or preventing the attrition of, 25% of the current female SET employees will add 220,000 highly skilled employees to this critical pipeline. It is beneficial, therefore, to study the success factors that would inspire these women to aspire to senior leadership positions within IT. In addition, this research will promote social change when IT departments implement the internal and external programs to recruit and retain more women of color candidates in their leadership pipeline. This research will be of value to those companies seeking to effectively attract and retain the intellectual capital of these female leaders.

Summary

This chapter provided an overview of the research problem, purpose and research questions that have been addressed by this dissertation. Gender identity theory, gender socialization, and critical race feminism have been selected as the theoretical framework, and will be further discussed in Chapter 2. This chapter also provided an overview of the phenomenological research methodology and data analysis approach that will be discussed in-depth in Chapter 3. This introductory chapter then closed with a review of the scope and limitations for the research. Chapter 4 will present the study results, including the demographic information for the participants, organized by research

question. Chapter 5 will present an analysis of the results, conclusions, implications for social change, and recommendations for future study.

In order to position this study within the realm of existing leadership research, the current literature on human development, gender development, female leadership, women of color leadership, and IT female leadership has been reviewed and synthesized. This is the focus of Chapter 2.

Chapter 2: Literature Review

Introduction

This study examined the journeys of successful IT leaders of ethnic minority ascent to senior leadership positions within corporate America. It is posited that female IT leaders are effective leaders, irrespective of their ethnic background. It is also posited that the discrepancy in the representation of women of color at the IT senior level is not based on their leadership qualifications, but could be related to artificial barriers (e.g. stereotypes). The specific problem that this research addressed was the under-representation of women of color IT leaders in corporate America.

The purpose of this phenomenological study was to investigate the experiences of women of color as senior IT executives in order to understand the success factors that have contributed to their ability to attain and sustain a senior position in IT. The research questions addressed how select demographic, individual, and organizational level factors serve as predictors of women of color's presence as senior IT leaders in corporations.

The glass ceiling phenomenon has been extensively researched in both academic and business forums (Byrd, 2009; Cooper, 2013; Eagly & Carli, 2003; Gibson, 2011; Kilian et al., 2005; Scales, 2011; Simmons, 2009; Tarmy, 2012; Thorpe-Moscon & Pollack, 2014; Toson, 2012; von Hippel et al., 2011; Wellington et al., 2003). Glass ceiling barriers to advancement include gender stereotyping; exclusion from influential networks in the work environment; disempowering encounters that removes needed validation and support; tokenism or being the only one; lack of personal networks of community; inexperience in navigating through internal politics; and not receiving the

opportunity to build critical experience and exposure through visible, challenging assignments or line experience.

However in the field of IT, the majority of the research on women has focused on barriers to academic success, or focused on White women and assumed that the conclusions would equally apply to women of color (Espinosa, 2011; Ong et al., 2011; Wright et al., 2010). A few studies were found that provided insights on ethnic minorities in general, or on career-entry barriers for women of color (Hewlett et al., 2008; Taha, 2013; Wright et al., 2010).

When it comes to studies focused on the leadership success factors for women IT leaders, some industry research (for example from the National Science Foundation, and the National Center for Women & Information Technology), and two peer-reviewed reports were found in this area (Hewlett et. al, 2008; National Center for Women & Information Technology, 2014a; National Science Foundation, 2013; Wright et. al, 2010). A search for peer-reviewed sources on the success strategies employed by senior or executive level IT women of color leaders failed to uncover any relevant matches. As a result this literature review synthesized the relevant research on female leadership; examined the barriers and success factors supporting the advancement of women; and, when available, the findings from leadership research focused on IT women and ethnic minorities.

Chapter 2 will start by reviewing the literature search strategy, including the databases searched, and search terms used. This will be followed by an overview of the theoretical foundations that framed the research and data analysis that is the socialization

of gender identity and critical race feminism. A review of the available literature will follow. A key factor was the approach used to identify the appropriate research given the limited availability of peer-reviewed leadership research on women of color IT senior leaders in corporate America.

Literature Search Strategy

There is limited research on the leadership challenges for ethnic minority leaders in IT. As a result, the search strategy focused on leadership research available for ethnic women, Black women, Asian women, Hispanic women, women in IT, and ethnic minorities in IT. Search queries were created for the following online databases: ABI/INFORM Complete, Business Source Complete/Premier, Emerald Management Journals, Management & Organizational Studies a SAGE Full Text collection, and ProQuest Dissertations & Thesis.

The search results were exported to an EndNote's library, where the duplicates were removed, and nursing or medical journal articles were removed. From the resulting 171 articles, a review of abstracts was conducted to determine potential in-scope articles and to delete any articles that were for outside of the United States or those that did not address leadership.

The PROQUEST dissertation database was also searched for all dissertations with the terms *Information Technology*, *women or female,* and *leader*. This search produced a total of 13 dissertations published between the years of 1991 and 2013. Of these dissertations, seven provided some perspectives that could inform this research. The other dissertations were not focused on female leaders in information technology. It should be

noted that of the seven dissertations only one included and highlighted ethnic minority participants. However that quantitative study categorized the ethnic minority groups as IT women, Blacks, Asians and Hispanics. The gender division of the ethnic groups in that dissertation was not provided or analyzed.

The bibliography of research papers, dissertations and relevant books were also reviewed to identify additional articles, and were included in the literature review. Figure 1 provides an overview of the structure of the literature review.

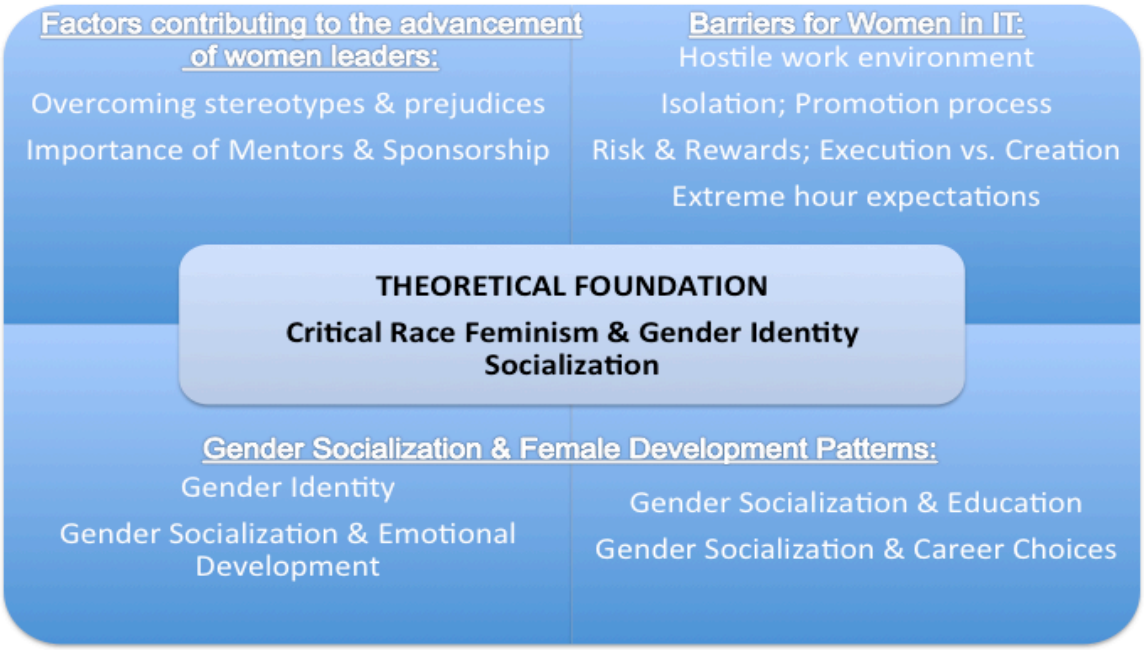

Figure 1. Overview of Literature Review.

Theoretical Foundation

The theoretical framework for this research is the impact of gender socialization and gender identity on perceptions of leadership effectiveness and critical race feminism (CRF) and is shown in figure 2.

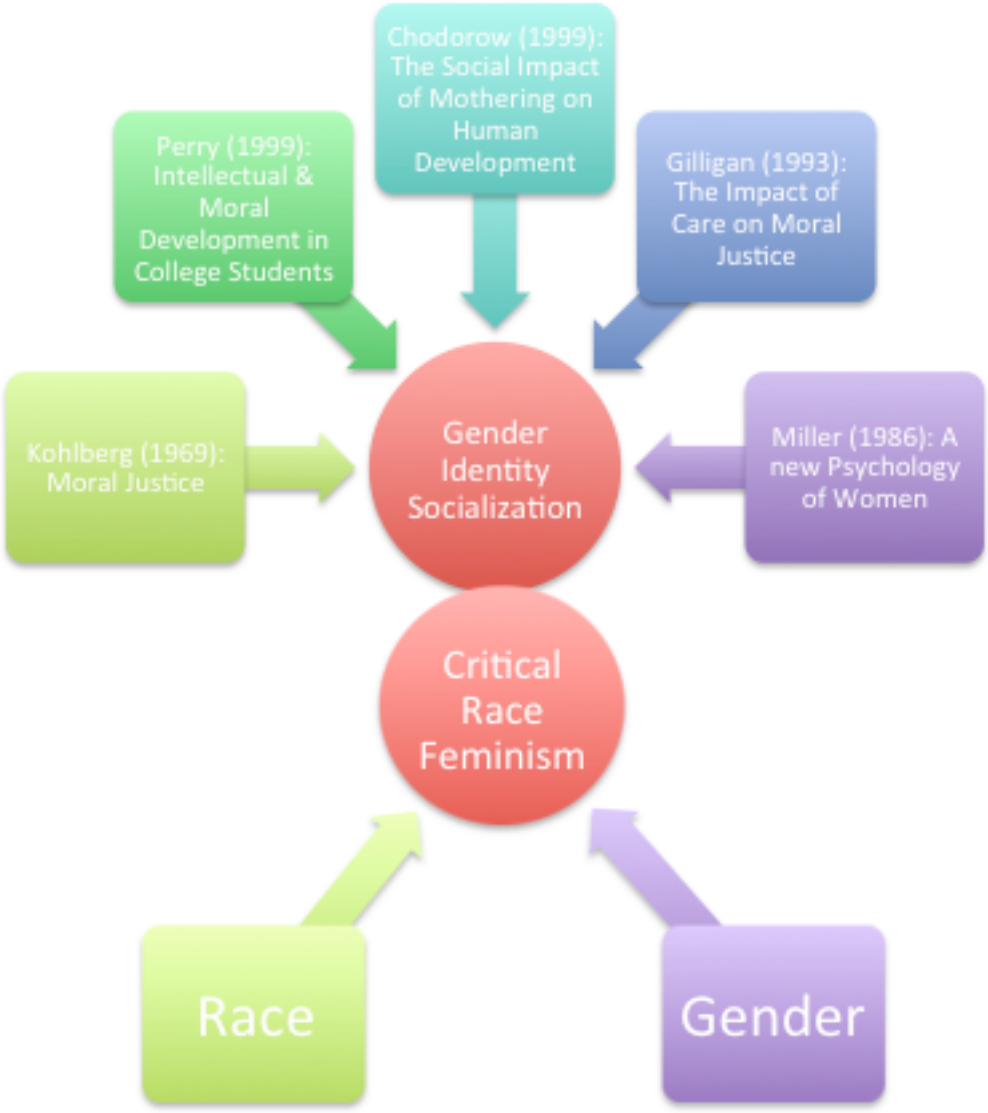

Figure 2. Theoretical Framework.

Human and Gender Development Foundational Theories Overview

In the study of human development, theories based on biological, sociocultural, cognitive, moral, and physiological processes sought to address the fundamentals of personal sense making and human behavior. The crucible of human development and socialization provides the foundation of the formation of gender identity. The theoretical

models founded in the socialization of gender, including social structural theory, take an approach of gender identity formation through nurture versus nature (Eagly & Wood, 1999; Kleyman, 2000). Gender specific roles and denial of attachment were perpetuated through motherhood, and informed the child's understanding of masculinity and power (Chodorow, 1999).

As adults this gender socialization impacted the perceived effectiveness of women in the corporate environment, and the definition and use of power (Miller, 1986). This section introduces the principle tenets of Kohlberg (1969), Perry (1999), Chodorow (1999), Gilligan (1993), and Miller (1986) in order to provide a historical foundation. Subsequently, their work has been integrated in a review of the moral and social influences on human behavior. This section concludes with a summary on the impact of gender socialization on education, emotional development, career choice, and leadership effectiveness.

Kohlberg–Moral Justice

Kohlberg supported a neo-Kantian definition of morality, one based on cognitivism (or rationalism) where the reasons for the actions behind moral judgments are considered separate from motives or emotions (Kohlberg et al., 1983). He posited that moral judgments were *universalizable* (others would have the same perspective in response to a dilemma) and *prescriptive* (any human being would be obligated to take action).

His conceptual framework incorporated cognitive and social developmental research. Using a myriad of longitudinal and cross-cultural studies that analyzed the

responses to a series of hypothetical moral dilemmas, Kohlberg (1969) found that moral judgment was not equivalent to the values defined in one's culture–that is, it is not learned behavior or ethical relativity. Moral reasoning is the transformation of cognitive structure during basic development (Kohlberg & Hersh, 1977). It results from the interaction with one's environment, is described in terms of activity or action, and is directed towards restoring or achieving balance between one's actions and the perceived actions of others towards the self (Kohlberg, 1969). In addition, there is a causal relationship between one's cognitive development and emotional development.

Kohlberg (1969) disagreed with the social learning theorists, and characterized their views on socialization as attempts to determine patterns in the behavior of society from isolated, abstract events. Instead, he posited that social development always involved some form of cognitive change. Examining the early cognitive development of children, Kohlberg found that they applied different techniques to solve problems depending on their age. These techniques can be grouped, and sequenced, with the higher cognitive stages integrating and building on the lower stages.

There are age-based stages for the development of moral judgment which are cognitively based and universally similar across cultures (Kohlberg, 1969). Kohlberg identified six stages of moral development. Each of the six stages documents the progressive development of one's internal conscience, and describes consistent systems of thought that all individuals pass through. Irrespective of cultural background, the movement through the stages was always forward–individuals rarely regressed or repeated a stage unless they experienced extreme trauma.

Individuals were driven to achieve the highest stages possible, with higher stages incorporating the thinking of the stages below it. The stages were further classified into three levels which outlined the basis of moral judgment: the preconventional level, the conventional level, and the postconventional, autonomous or principled level (Kohlberg & Hersh, 1977).

Criticisms of Kohlberg's stages of moral development. Some of the strongest criticism of Kohlberg's stages came from Gilligan (1993) (reviewed later in this paper) and other female developmental theorists who suggested the presence of gender-bias in his research. Most of his research was on male subjects, and Kohlberg suggested in earlier studies that women could not acquire the abilities required for the justice reasoning of stage four and five (Kohlberg et al., 1983).

Supporters of Kohlberg acknowledge the presence of gender bias in his earlier method of stage scoring in 1958, but claim that this was corrected in the later 1983 Standard Issue Scoring System (Kohlberg et al., 1983). They conclude that an evaluation of the results from several studies showed that there were no gender-based differences in moral justice reasoning skills. They also reported that these studies only identified gender-based differences in justice reasoning that were attributed to higher education or to work-based roles (Kohlberg et al., 1983).

Citing a broader, gender inclusive, base of research, Gilligan (1993) proposed two moral orientations, justice and care that are gender related. She states that Kohlberg's conclusions relate to moral development in men–one primarily concerned with justice. While Kohlberg acknowledges the existence of care in the moral decision, he concluded

that care is a factor in the response to the moral dilemma, not a distinct track or orientation (Kohlberg et al., 1983).

Conclusion. Kohlberg identified some universal developmental trends in moral judgment. His work showed the impact of cognitive development on moral and emotional development. He also found that the relative importance of one's environment or social group to the resolution of moral dilemmas varies at each of these moral developmental stages (Kohlberg, 1969). In the end:

> while moral judgment is only one of many predictors of action in moral conflict situations, it can be a quite powerful and meaningful predictor of action where it gives rise to distinctive ways of defining concrete situational rights and duties in socially ambiguous situations. (Kohlberg, 1969, p. 396-397)

Kohlberg (1969) believed that women would be motivated to a move to a higher stage of moral development if they recognized the importance of advancing to a morality based on justice–like men. His framework, in fact describes the culture and decision-making process in the typical male-dominated IT organization. Kohlberg's (1969) work provides a framework to interpret the development of moral judgment in men–and the male-dominated culture where the woman in IT needs to learn to exist and thrive. In a traditionally male-dominated IT culture, this framework provides a justification for men to maintain an environment that favors the decision-making processes focused on individual achievement versus the morality of connection favored by Gilligan (1993), and traditionally employed by women.

As discussed further in this literature review, women in information technology are placed in academic and workplace environments that support the individual, technically demonstrative, male-ego. In contrast, women build teams, relationships, and connections with the business in order to build solutions, rather than just implementing the best coded program. However as female theorists posited, the decision-making process is not the same for women. This will be discussed in the theoretical frameworks of Chodorow (1999), Gilligan (1993), and Miller (1986).

Perry–Intellectual and Moral Development in College Students

From Perry's (1999) research on the intellectual and moral development of college students a nine-stage schema emerged to systematize the experiences of these young adults. Citing foundational assumptions from the modern contextual pragmatism of Dewey, White, and Quine, Perry identified the underlying emphasis on *purpose* at each developmental position. Perry (1999) stated that one could interpret his schema as an additional Piagetian period or the period of responsibility.

Perry's (1999) research subjects were college students, selected in their freshman year, and interviewed every year during their college undergraduate career. His research confirmed the progressive development of the thinking process during the college years. It also documented the students' transition from their original dualistic, pre-college world, to the pluralistic college environment, and their response to this adjustment.

Their response to this intellectual and moral relativism varied: a few students opted to retreat in order to avoid the transition; the majority developed their own sense of personal commitment at intellectual and moral levels (Perry, 1999). In fact, the way that

they chose to address their academic, extracurricular and employment challenges was consistent with the way that they experienced their values and constructed the meaning of their world (Perry, 1999).

Conclusion. Perry's (1999) research provided an extension to Piaget's developmental cycle, completing the moral and intellectual developmental transition from adolescence to young adulthood. His work showed that in a given cultural setting, moral and intellectual development includes addressing various moral issues (Perry, 1999). It provided the epistemological foundation for subsequent developmental work by feminist theorists in human development such as Gilligan who is reviewed in this paper. Agreeing with Perry's research, Gilligan concluded that both men and women experienced this transition from absolutism to relativism, but the definition of absolutes was different for the genders (Gilligan, 1993).

In addition, at the end of this journey, women developed a different context for moral decision and judgment. Belenky, Clinchy, Goldberger, and Tarule (1997) credited Perry's chart as foundational for their subsequent evaluation of the development of female students. In their study, they highlighted Perry as one of the few male voices included in their investigation of the unique ways women built and developed their concepts of knowledge and truth (Belenky et al., 1997).

Chodorow–The Social Impact of Mothering on Human Development

Chodorow (1999) relies on psychoanalytic theory to analyze the family structure and the critical role that mothering has on gender and personality development. Her work focused on the social and economic implications of the development and reproduction of

mothers. Using the psychoanalytic account of personality development, Chodorow showed that mothers reproduced themselves–they produce daughters who in turn want to become mothers. This goes beyond the biological assumptions by non-feminist theorists; the development of women as mothers and men (as not-mothers) is sociological. The developmental suppression of nurturing behavior in men does not occur in the mother-daughter relationship. This relationship between mothers and sons, and the resulting repression of the nurturing role prepares for corporate and public roles (Chodorow, 1999).

However, this is not simply a result of the gender-role training suggested by some feminist theorists and social psychologists (Chodorow, 1999). In determining why women mother (and why men do not), it has been suggested that the answer lies in their differences in the use of power. Since parenting is an unpaid private job occurring outside of the world of public power, women (who do most of the parenting) are in a position of powerlessness.

Men, who operate in the world of society and power, chose not to be in a position of powerlessness, instead selecting to continue their position of dominance in the parenting relationship (Chodorow, 1999). However while role identification, and subordinate-dominant power theories influence mothering, they cannot provide the full account of this relationship. Chodorow (1999) proposes that women get satisfaction from the act of mothering, want to mother, and are successful at mothering.

To understand how mothers reproduce themselves, one must integrate psychoanalytic theory with social reproduction (Chodorow, 1999). From psychoanalysis,

it can be seen that the division of labor in families creates the conditions for replication of the personalities, needs, and defenses that perpetuate gender development in the family. Thus mothering establishes and nurtures the family institution which in turn, establishes the gender divisions that continue the reproduction of nurturing mothers and supports the comparative disengagement of the fathers (Chodorow, 1999).

In relationships, people transform and adjust their innate desires in order to achieve their objectives (Chodorow, 1999). Social relationships are a determining factor in a child's psychological and personality development. Girls and boys experience different relational experiences through the family structure (Chodorow, 1999). These experiences provide gendered paths for their personality development, and the subsequent establishment of different relational needs and capacities in men and women. Chodorow's framework used developing ego, relational potential and psychoanalytic capacity terminology to reinterpret the traditional psychoanalytic theories for gender development and clinical case studies (Chodorow, 1999).

Early psychological development. The early psychological development of the child, is heavily influenced by the relationship to his or her caretaker usually the mother (Chodorow, 1999). In the newborn, there is little distinction between the child and the environment. Cognitively narcissistic, the infant focuses on his or herself and satisfaction of his or her needs. However, during the fourth or fifth month, the differentiation between child and caregiver emerges.

For the infant, this features the development of his or her primary love for the caregiver who satisfies his or her needs without obligation or expecting anything in return

(Chodorow, 1999). To the child, primary love includes attachment to the physical provider of his or her needs. The child's first development or interest in the needs of others occurs when he or she starts to identify and consider the needs of the other–his or her caregiver. His or her success in completing this separation of personal identity forms the basis of the child's ability to develop other attachments in the future (Chodorow, 1999).

The relationship to the mother. The child's relationship with the mother is his or her first relationship, and as such, it informs the nature of all other relationships (Chodorow, 1999). Women, as mothers, provide contextual assumptions for girls and boys. The child gains the most knowledge of his or her own mother since she is the main adult nurturer, forming conscious and unconscious expectations of the care and sacrifice of women and mothers. This knowledge informs his or her own fears of repression and submission, fears which the child attributes to his or her mother, and therefore to all women. In contrast, the comparative unavailability of the father, results in the child fantasizing about his role. The child associates these idealized virtues and attributes with the father, and as a result respects and admires all men (Chodorow, 1999).

The differences in the mother-daughter and mother-son relationships impact the length of the preoedipal period (Chodorow, 1999). Because the boy is of a different gender from his mother, the mother finds it difficult to separate her feelings for him from that of men in general, specifically his father. The nature of the mother-son relationship becomes sexualized, ushering the boy into the oedipal (defined as the focus on possession of someone clearly different and opposite) stage. Boys grow up to compete with their

father for the love of their mother, and seek to be like their father in order to win her (Chodorow, 1999).

Girls experience an extended preoedipal period (Chodorow, 1999). Since they are the same sex as their mother, the mother finds it difficult to view her daughter as separate from herself. The girls' oedipal relationship occurs with her father, who she turns to in order to initiate the separation from her mother. However, unlike boys who make a clean separation from their mother in order to explore and define their masculinity, girls continue their relationship with their mothers during their oedipal period. The girl adds the emerging love for her father to her dependence and attachment to her mother. This triangular relational development of girls provides the foundation for relationships built on a desire to establish and maintain a sense of connection (Chodorow, 1999).

There are gender differences in the resolution of the oedipal conflicts (Chodorow, 1999). For girls, it usually results in an erotic heterosexual resolution towards men that is not exclusive. Girls and women retain some of their sexual love and commitment to other women and their mother. This is in contrast to boys who reject the emotional connection to men and their father in favor of the emerging or sexualized relationship with women and their mother. In the resolution of the oedipal complex, therefore, girls emerge with a capacity for empathy and connection not developed in boys. Therefore masculine personality is defined through the denial of connection (and femininity), while a woman's sense of self is defined though relationship and connection (Chodorow, 1999).

Conclusion. Psychoanalysis posits that the personalities of children become socialized to their gender norms and roles in society through their participation in the

family institution (Chodorow, 1999). Object-relations theory found that growth at the psychological and physiological levels is determined through a child's relationship with his or her environment. In applying object-relations theory, psychoanalytic theory and personal ego theory to psychoanalytic clinical case studies Chodorow (1999) showed that this difference in childhood developmental patterns leads to gender socialization, and continues to influence one's response as an adult. Chodorow's reinterpretation of traditional psychoanalytical theory provides a framework for understanding male and female development, relational potential, and psychological capacities.

However, by implying that all women want to mother and all men are non-nurturing, absent fathers, Chodorow (1999) has been criticized for being sweepingly dogmatic. In recent times, there has been an emergence of public campaigns encouraging men to spend more time with their children. There are also women who have elected not to have children in their pursuit of other interests.

Chodorow's (1999) research was influenced by the environment of the 1970's, and the emergence of women leaders in the public sector and workforce at that time. However, her interpretation of the family structure remains relevant. Society still expects full-time working mothers to assume the role of primary caregiver–a role that continues to be developed and enforced by the mother and her partner. Chodorow (1999) recommended fundamental changes to the parenting role, in order to provide equal participation by both partners. Only then can the family produce sons that nurture, and daughters who are equipped to function in the corporate environment.

Gilligan–The Impact of Care on Moral Justice

Research on the development of women has been largely excluded from the theoretical account of human development (Gilligan, 1993). However, there are challenges to developing an understanding of the evolution of a woman's sense of self and moral formation. Gilligan (1993) sought to highlight the gaps in a theoretical framework formed through research on men and extrapolated to the development of women.

She found that these traditional theories for human development built on the concept of separation of self were invalid for the female experience (Gilligan, 1993). This was both the separation of men from women, and the apparent selflessness of women who abandon their own needs while catering to those of others. Her research provided a new theoretical framework to examine the development of a woman's identity as an adolescent and an adult (Gilligan, 1993).

As men and women mature, they abandon their original concepts of morality and truth founded on absolutes, and transition to a framework of relativism (Gilligan, 1993). There are gender differences in the definition of these absolutes. For women, absolutes can be described in terms of care and not hurting others. As they mature, women abandon a definition of care and relationship that embodies the care of others at the expense of oneself (Gilligan, 1993). In contrast, men define their absolutes as truth, equality, and fairness. When they face experiences that show that there are differences between other and self, their absolutes are challenged (Gilligan, 1993). The realization of the existence of several truths, for example, provides a context of relativity.

One explanation of the popularity of the male model of human development is its alignment with the characteristics required for professional success (Gilligan, 1993). The ability to think clearly, act autonomously, and be decisive is valued in the male model of corporate success (Gilligan, 1993). In contrast, the characteristics normally attributed to women–moral concern, care, sensitivity, and inclusion of the opinions of others, are interpreted as indecisive, emotional, and unprofessional in the corporate environment (Gilligan, 1993).

For example, Gilligan (1993) characterized men interpreting their environment as a series of win-lose games, where the goal is winning. Men constantly competed for promotions, projects, customers, etc. This masculine definition of winning and success was developed as boys, when they engaged in competitive activities that provided power and recognition to the winner, and disgrace to the loser (Gilligan, 1993).

This characteristic that is admired in men, however, is at conflict with the social definitions of femininity (Gilligan, 1993). When female leaders align with these social expectations, they appear to lack motivation, and are assumed to fear success. If their reaction to competitive achievement is reinterpreted through the contextual lens of female developmental differences, women emerge as leaders who, through their heightened perception, understand the true emotional cost of the success gained by the loss of others. Many women decide not to pursue a path of competitive achievement–they do not believe it is worth the emotional price (Gilligan, 1993).

Gilligan (1993) determined that there was gender alignment between the morality of rights (masculine) and the morality of connection, relationship, and care (feminine).

The morality of rights focused on the individual's action and responsibility, even at the risk of damaging the relationship and creating separation. This was aligned with the development of men who defined maturity in terms of autonomy and separation. As Maslow noted in his description of the self-actualized person, it is an aspiration towards a state where the person is not dependent or needs the connectivity to others to be *whole* (Maslow, 1999).

In line with a morality of rights, Kohlberg's (1983) dilemmas are framed as choices–the choice to take an action, and take responsibility for that action. Women do not respond out of choice, particularly when either option would result in hurting a relationship. As a result, women reframe the dilemma to a scenario that provides opportunities to protect the relationships. The conflict is thereby resolved through an ethic of care (Gilligan, 1993).

This allows women to preserve a sense of identity bound in their ability to maintain the relationship (connection) (Gilligan, 1993). For women, the concept of interconnection is a part of their identity. As a result their interpretation of morality makes room for care and responsibility in relationships (Gilligan, 1993). The moral judgment of women is not absolute, and is more tolerant as it extends beyond the focus on the individual, to that of others and themselves. Developmentally, women recognize the importance of attachment and connection in maintaining the human life cycle.

Conclusion. Gilligan's greatest critic was Kohlberg (1983) and his supporters, who acknowledged the impact of relationships and care on moral judgment but denied its existence as a separate type of morality or process for judgment. It was Kohlberg's

(1983) belief that women would be motivated to move to a higher stage of moral development if they recognized the importance of advancing to a morality based on justice–like men. However, Kohlberg's method is invalid for women, who re-interpret rather than address the Kohlberg dilemmas (Gilligan, 1993). Their response, based on their new interpretation, explains the (relatively low) position on his scale.

Gilligan's (1993) research revealed that the concepts of human development described by theorists such as Freud, Piaget, or Kohlberg could not sufficiently encompass the development of women. Challenging Kohlberg's model of morality based on judgment, Gilligan (1993) posited that "by changing the lens of developmental observation from individual achievement to relationships of care, women depict ongoing attachment as the path that leads to maturity" (Gilligan, 1993, p. 170). This is a path that Gilligan continued to chart for the developmental stages of women and one that led to the reinterpretation of the experience of women in her own voice.

Miller–A New Psychology of Women

Miller's (1986) framework for human development is the paradigm of relationships created in an environment of permanent inequality She posits that one group (men) has identified itself as dominant over another group (women) based on a criteria of gender ascribed at birth. Men, as the dominant group (a) define specific roles for women, (b) impede the development of women in roles that the dominant group occupies, (c) describe the unique talents of women using terminology of weakness and inferiority, and (d) encourage women to occupy roles that they (the dominant group) do not want to hold.

Additionally, in this environment of permanent inequality, the dominant group has access to all the authority and determines the acceptable uses of power (Miller, 1986).

Miller (1986) found that women, as the subordinate group learn to accept their social position and support it by confirming the positive traits of men. To support this position of inferiority, men label the strengths and differences of their subordinate class (women) as defective or substandard. When some women, consistent with the psychology of dominance-subordination, stop accepting their position as inferiors their resistance is interpreted by men as open conflict (Miller, 1986). In order to minimize resistance, women are encouraged to view the roles occupied by the dominant group (men) as unfeminine and risky.

Women are also discouraged from pursuing opportunities for their further development, by insinuating that investment in self-development will destroy the possibility of acquiring and maintaining close relationships (Miller, 1986). To divert them from any attempts at self-development, women are provided with diversions to distract them from understanding and expressing their own needs. They are also encouraged to believe that their needs are identical to those of others–usually to men or children. Women have now reached a point where they see this redirection of their own needs to that of others as a form of oppression (Miller, 1986).

Growth through conflict. Conflict is required for growth, and as such, is an important developmental component (Miller, 1986). However, women are taught that conflict destroys relationships and should be avoided. To grow, women need to resolve this apparent disconnect between relationship and conflict. When a woman feels conflicts

developing, she automatically believes that something is psychologically wrong with her, since the experience counters her acculturation that she is supposed to get along (Miller, 1986).

Recognizing this, a tactic often employed by the dominant group, is to avoid responsibility by transferring their feelings of conflict to women (Miller, 1986). As a result, women who seek to resolve or eliminate the conflict, accept the activities, consequences or emotions related to the issue as their own (Miller, 1986). Miller (1986) provides an example of this type of conflict in describing the emotions of a woman who was promoted to a role she desired. Although she was excited about the new role, and anticipated the change of increased responsibility, she battled her insecurities about accepting a position, which satisfied her career aspirations but would affect her ability to satisfy the needs or expectations of others (in this case her family relationships).

For women to experience growth they will need to start to accept the emotional outcomes of conflict (Miller, 1986). In many cases, it is easier for women to regress to a state of deference and compliance, rather than oppose their trained response of submissiveness to men (bosses, leaders, spouses, etc.). In contrast, men enjoy conflict, and use it as a language of engagement and communication with other men. For most women, conflict is still a new and uncomfortable behavior that can leave them feeling emotionally raw, and they rarely participate in this type of rapport (Miller, 1986).

Strengths of women. As the subordinate gender, women have been positioned as weaker than men (Miller, 1986). However, out of this learned weakness women have developed an emotional and relational strength. This allows them to sense the emotional

components of their environment, and to tolerate feelings of weakness or vulnerability much more than men. This ability to endure hardship or emotional pain is an important strength of women, since in the human experience it is impossible to avoid the feelings of weakness and vulnerability brought on by new challenges and change. Suppressing these feelings forfeits an opportunity for psychological growth. While from an early age, men have been trained to focus on each of their activities in a rational manner, women are trained to become involved in the emotions and feelings generated during their activities (Miller, 1986).

Other strengths of women include (a) a drive towards cooperativeness, (b) emotional sensitivity, and (c) a tolerance for uncertainty (Miller, 1986). Women acknowledge the interdependent nature of the human existence, and this drives them towards cooperativeness. This is a skill they learn in the family, where, in spite of their subordinate role, they develop a structure of cooperation in order to meet the needs of all the members.

In contrast, the experience of men is one where they are being treated as the dominant (superior) class and having things done for them (Miller, 1986). Cooperation is in opposition to the male role of achieving results though dominance, and is therefore interpreted as weakness. That is, it signals to themselves and to others, that they are not capable of enforcing their leadership role to demand the required outcome. For women, who have practiced and developed this skill in the family environment, cooperation is their only method for achieving results. Cooperation, for women, builds a path to success (Miller, 1986).

Development of the ego and identity in women. Women develop through affiliation (Miller, 1986). Male society typically overlooks this developmental process since it is different from their own and they do not understand it (Miller, 1986). This development through affiliation causes women to develop a context for connection and relationships, and is core to the well being of women. For men, however, affiliation and connection is a threat to their masculinity. They have delegated the roles of understanding and serving the needs of others to the subordinate class (women). To perform those activities of care and connection would be equivalent to becoming a woman, or in effect, to losing their masculinity and becoming powerless (Miller, 1986).

There are gender differences in the development of the ego (Miller, 1986). Miller (1986) found that the psyche of women is permeable, that is their ego boundaries are less rigid than men. Freud interpreted this as women having a less-developed super-ego. However since the developmental experiences of women differ from men, particularly in their interpretation and response to their reality, it is natural that their ego and super-ego, formed in relation to their reality, would be different. The reality of women is that of connection and relationships. For women, this development of an identity of connection provides less distinct boundaries between themselves and the *other*, particularly the interpretation of their needs as the needs of the *other*. In contrast, men are informed by a reality of separation and autonomy. They form distinct boundaries between the *I* and the *other* (Miller, 1986).

In conclusion, this maturing of women in a crucible of subordination results in the development of adaptive traits and unique strengths. It impacts the social expression of

gender roles, the perceived effectiveness of women in the corporate environment, and the definition and use of power (Miller, 1986). This is discussed in the section on the social development of gender.

Social Development of Gender

The environment influences human development. It impacts childhood relationships where gender development and power socialization occurs (Chodorow, 1999; Miller, 1986), and continues to impact the maturation of college students or young adults as they develop morally and intellectually (Perry, 1999). Although both Chodorow and Miller looked at socialization from the perspective of early developmental relationships, Chodorow's work focused on the mother-child relationship and its influence on gender development, while Miller used the contextual framework of male cultural dominance.

The process of learning what it is to be male or female differs for boys and girls (Chodorow, 1999). Relational differences, such as the verbal nuances expressed when a mother speaks to her son versus her daughter, can alter the child's developmental experience. Girls use their relationship and ongoing contact with their available mother to learn what it is to be a woman and a mother.

In the preoedipal period, the gender similarities between girls and their mothers influences the quality of the treatment by their mothers (Chodorow, 1999). Unlike boys, the preoedipal attachment to her mother occurs for an extended period in girls. As a girl enters her oedipal period, she adds the emerging love for her father to her dependence and attachment to her mother. Girls therefore develop an internal complexity–an

emotional triangle that supports the preoedipal attachment to her mother while adding the oedipal attachment to her father (Chodorow 1999).

In the resolution of their oedipal conflict, the emotional commitment and sexual love for girls and women is not exclusively directed to the opposite sex (Chodorow, 1999). This continuation of aspects of the preoedipal mother-daughter attachment, unhindered oedipal attachment to her father coupled with their experience of flexible ego-boundaries, develops in women a proneness to identification, empathy, subjectivity, intuition, inner perception, and imagination (Chodorow, 1999). These gendered characteristics are transferred to the workplace, informing career choices and accepted feminine behavior (Chodorow, 1999).

In the typical Western household, the gender differences between mother and son combined with the prolonged absences by the father impacts the relationship the mother has with her son (Chodorow, 1999). This causes that relationship to become oedipal (sexualized and focused on possession) at an earlier age in boys than for girls (Chodorow, 1999). For the boy entering the oedipal stage, his mother becomes his exclusive oedipal object. Boys reject the emotional connection to men (their father) in favor of the emerging or sexualized relationship with women (their mother) (Chodorow, 1999).

However, during this period boys are also left to select a masculine role model in order to define and emulate masculinity (Chodorow, 1999). Men develop their identity from these masculine cultural stereotypes–learning the separateness and differentiation that is imputed to the absent, unavailable father (Chodorow, 1999). In his resolution of

the oedipal complex, his personality becomes defined in terms of the denial of any aspects of femininity or connection (Chodorow, 1999).

As a result, boys develop well defined ego-boundaries and a masculine sense of self that is separate and differentiated (Chodorow, 1999). For boys and men, this denial of connectedness in relationship allows them to exclude from their sense of identity, anything that represents femininity (Chodorow, 1999). In contrast, the roles reproduced in girls are personalities oriented towards relational issues and connectedness (Chodorow, 1999).

The enforcement of gender specific roles and denial of attachment helps to foster the perpetuation of the sense of masculinity and power (Chodorow, 1999). Mothers create pseudo-independence in their sons by generally encouraging them to *do well*, instead of setting specific goals for them. When the boy grows up to become a man in the labor market, he still strives to *do well* and win his mothers' approval. However, since they lack specific goals, and success in the world it does not bring true satisfaction, and men continue in a state of generalized striving (Chodorow, 1999). Therefore their gender socialization supports and prepares men to be productive in the contractual or defined work environment built around specific tasks and structured progress (Chodorow, 1999).

By reproducing the gendered roles of men and women, mothering continues to support the development of men as the dominant group and women as the subordinate group (Chodorow, 1999; Miller, 1986). Mothering is an unpaid private job occurring outside of the world of public power. It places women in position of powerlessness, while

men, who operate in the world of society and power, escape this powerlessness by delegating the role of primary caregiver to women.

In their subordinate role women learn to support the feelings of others, and become involved in the emotional components of all of their activities, particularly those of men (Miller, 1986). They establish a sense of self and identity in the context of connections, affiliations, and relationships. In line with their need to support others, women have been acculturated to believe that power is only good if it is used to serve others (Miller, 1991), and develop the ability to use their emotional attenuation to exercise covert power over the dominant group (Miller, 1986).

Women actively seek a solution that satisfies everyone's needs (Miller, 1986). For women this power or empowerment is the ability to implement or to produce results by seeking opportunities to pool the power of others in order to produce the desired result. It is power based on relationship and trust, enabling others to act.

Women desire and need power to succeed on a personal and political level (Miller, 1991). Viewed as positional subordinates by men, women battle gender stereotypic expectations and internal fears of power when they are in leadership positions. As nurturers of others, women have to confront their fear of being seen as selfish, destroying relationships, and destroying their sense of identity when they pursue and use their power (Miller, 1991). Power through cooperation contradicts the masculine norm of achieving results by dominance. However, women have practiced and developed this skill in the family environment where cooperation is their only method for achieving results. Therefore, for women, cooperation is power (Miller, 1986).

In their development as men, boys are taught that they are members of a superior group with others to serve and support them (Miller, 1986). They are rational and relegate the emotions to the subordinate group (women). Unlike women, cooperativeness for boys and men brings a sense of loss or giving up (Miller, 1986). Men, as the dominant group, are taught to acquire and dominate with win-lose consequences. This characteristic of power has implications in the comparative effectiveness of men and women in the workplace.

Critical Race Feminist Theory

In addition to the theoretical underpinning of gender identity theory, critical race feminism (CRF) a branch of critical race theory (CRT) has been selected as a theoretical lens. In critical race theory the perspective of White as the dominant standard is used to analyze racial dynamics, including power relationships and the experiences of the people of color (Petitt, 2009; Taylor, 1998). The act of singling out Blacks and other people of color as worthy of suppression by Whites embodies the lived experiences of racism–an experience that permeates the social institutions where the research participants live and work.

CRT studies the transformation of these social institutions and envisions new possibilities for truth, fairness and justice (Creswell, 1998; Taylor, 1998). There are five tenets of CRT (Byrd, 2009; Denzin, 2005; Evans-Winters & Esposito, 2010):

- The focus on the integral role that race and racism plays in explaining the functioning of United States society.

- The challenge to the idealistic views of those who believe that color blindness, equal opportunity and racial neutrality have been achieved.
- The activist commitment to social justice and driving new possibilities.
- It highlights and gives voice to the experiences of the marginalized and oppressed.
- It is interdisciplinary in scope and function.

CRT assumes that all Blacks and Whites act in a prejudiced or homogenous ways–and this is one of its greatest limitations. However the underlying constructs are useful in describing the social structures that are also found in the business environment (Evans-Winters & Esposito, 2010).

Critical race feminism (Evans-Winters & Esposito, 2010), focuses on the multiple identities, consciousness, and discrimination faced by women who live in the intersection of race and gender. The premise is that for women of color, their race and gender becomes a distinctly new experience–not an additive of those inequities–and is significantly different from the experience of white women or men of color (Livingston et al., 2012; Peterson et al., 2007; Sanchez-Hucles & Davis, 2010).

These women who fall on the lower positions of two social categories of race and gender, experience the highest disadvantage of either category. This is also known as the double jeopardy hypothesis (Hom, Roberson, & Ellis, 2008; Livingston et al., 2012). Therefore the critical race feminism lens and the socialization of gender identity lens will be used to interpret the corporate institutions and related social systems that are embedded in the lived-experience of these women.

The Impact of Gender Socialization on Female Developmental Patterns

One's gender belief system is informed by the stereotypical beliefs, attitudes, anticipated roles, and the expected behavior of men and women (Alford, 2011; Bruckmüller & Branscombe, 2010; Deaux & Kite, 1987;Johnson, 2013). There is a correlation between gender and perceptions of leadership effectiveness. Management is generally defined and evaluated in masculine terms (*think-manager-think-male*). This section will (a) describe and explain the impact of gender socialization on female developmental patterns, and (b) evaluate the impact of gender socialization on the perceptions of leadership effectiveness.

Gender Identity

The developmental experiences of women differ from men–particularly in their interpretation and response to their reality (Chodorow, 1999; Gilligan, 1993). As a result, there are differences in the formation of their ego and super-ego formed in relation to their reality. Women develop an identity of connection, which provides less distinct boundaries between themselves and the other, and are said to have a permeable ego boundary (Dennis & Kunkel, 2004; Miller, 1986).

Social connectedness is also a key component of gender definition or identity formation. It "provides a personal sense of identity as well as a sense of place in society" (Lee & Robbins, 2000, p. 484). Chodorow (1999) and other feminist scholars such as Gilligan (1993) and Belenky et al. (1997), stated that social connectedness was more important for women.

Contrary to these findings, Lee and Robbins (2000) hypothesized that both men and women need the same level of social connectedness, but used different types of relationships to provide it. Gender identity influences education, career choices, emotional development, stress, emotional expression, stress coping mechanisms, and relationship needs. The following sections will review the impact of gender identity and gender socialization as expressed in the emotional, educational, and professional or career development of women.

Gender Socialization and Emotional Development

Culturally, it is assumed that women are more emotional and express their emotions more frequently than men (Simon & Nath, 2004). These cultural beliefs have been used to justify gender inequality in the workplace, society, family and politics (Simon & Nath, 2004). Although there are gender differences in the frequency of emotional expression, and the occurrence of negative versus position emotions, the assumption that women are more emotional than men is not supported.

This is in line with earlier theories about emotional development (Chodorow, 1999; Miller, 1986). In their early development in a middle-class American environment, boys are encouraged to deny emotional dependence or attachment to women, and instead to focus on activities that essentially prove their independence and win the heart of a woman who is psychologically, their mother (Chodorow, 1999; Miller, 1986). Their emotional needs are therefore satisfied externally and physically, such as in the physical or behavioral expression of anger.

In contrast, women are socialized to be emotionally involved and are unable to separate their feelings from the activity or situation (Miller, 1986). Their emotional experiences occur in an environment where they are the main providers of emotional support to their families but receive little emotional support in return (Chodorow, 1999). The lack of emotional support extends to self-development where women are socialized to believe that by focusing on their own development, they will jeopardize their ability to form close relationships (Miller, 1986).

This has implications in the workplace, particularly in a male-dominated IT workplace, where management is generally defined and evaluated in masculine terms (think-manager-think-male). It is therefore important that women develop the ability to examine and define measures for success beyond stereotypical gender connotations, and protect themselves from the effect of negative upward comparisons (Martinot & Redersdorff, 2003).

In interviews with successful women in leadership positions, several include in their repertoire maintaining a position of self-confidence, resilience, self-motivation, and high self- belief (Brooks Greaux, 2010; Rodriguez, 2011; Tarmy, 2012). This is coupled with a coping strategy that changes their approach, their interpretation, or their reaction to situations that would otherwise be unpalatable or difficult to accept. This allows them to regain control in managing their careers and or personal well being. By depersonalizing, compartmentalizing, or otherwise releasing the stress of the situation, they preserve their career and emotional well being (Brooks Greaux, 2010; Rodriguez, 2011; Tarmy, 2012).

Gender Socialization and Education

There are gendered differences in ones' approach to education, specifically in the expectations of those who pursue science as a career (Enman & Lupart, 2000). Women place a high value on university education, but have a lower expectation than men of their ability to be successful in the sciences (Enman & Lupart, 2000). The perceptions and beliefs that women have about science is representative of the barriers women face as a result of gender socialization in education specifically "the roles epistemology and epistemological dissonance play in their pursuit of an advanced education" (Enman & Lupart, 2000, p. 175). These perceptions can be overcome through continued cycles of success.

For example, young girls excel in STEM at elementary school levels but lose interest at middle and high school (Johnson, 2013; Miles, 2009; Rodriguez, 2011). As stated earlier, the research confirms that college women have higher GPAs in every college major, including in mathematics and science degrees (Dey & Hill, 2007).

Socially, girls are still receiving the message while growing up that it is less acceptable for girls to succeed in STEM subjects (Hill, Corbett, & St Rose, 2010; National Center for Women & Information Technology, 2014). In addition, girls believe that in order to be successful in these male dominated subjects and fields, they need to be exceptional. Therefore they assess themselves as being less adept in their STEM skills, but hold themselves to higher standards for success (Hill, Corbett, & St Rose, 2010). In terms of the ethnic composition of undergraduate students in computer information science, the percentage of women of color who earn bachelor's degrees in computer

science is also low (National Center for Women & Information Technology, 2014; National Science Foundation, 2013).

The culture of STEM departments contributes to the attrition of women who have the interest and ability to succeed (Espinosa, 2011). They feel outnumbered and that they do not fit in (Espinosa, 2011). Some researchers have found that women of color were more likely to enroll, stay in STEM degree programs, and graduate if they were encouraged, and exposed to the career possibilities through the use of mentors, programs and internships. Recently there have also been campaigns to change the societal mindset that attributes a negative connotation to girls who take leadership roles or engage in debate. The campaign to ban the word *bossy* by Sheryl Sandberg and Beyoncé Knowles is an example of the types of changes that are being promoted.

Gender Socialization and Career Choices

There is research to suggest that self-efficacy and expectations of success influences career choices by women. For example, the career-related self-efficacy model developed by Hackett and Betz (as cited in Sullivan & Mahalik, 2000) found that the gender-socialization of women restricts their access to the information they need to develop confidence in their career and their professional success. Children learn their gender roles by observing the cues from the adults around them. As an adult this gender socialization impacts the perceived effectiveness of women in the corporate environment, and the definition and use of power (Chiu, 2010; Chodorow, 1999; Lindberg, Hyde, & Hirsch, 2008; Miller, 1986).

As some researchers (Brooks Greaux, 2010; Kyriakidou, 2012; Lester, 2008; Sullivan & Mahalik, 2000; Yang, 2011) posit gender stereotyping influences ones' emotional, educational, and career development. This has its roots in childhood development since girls who accept a role defined by gender stereotypes may underestimate their ability (Sullivan & Mahalik, 2000). In early development, girls are socialized to be concerned with emotions, relational issues and are less oriented towards competitive success (Chiu, 2010; Chodorow, 1999; Cloninger, Ramamoorthy, & Flood, 2011; Eagly & Wood, 1999; Miller, 1986; Reid, 2004).

Key individuals in her life can also shape a woman's expectations for achievement and success. Stroink(2004) found that the variations in expectations as defined by their mother, father, and partner (in descending order) have the greatest impact on women's expectations for achievement and success. The discrepancies between these expectations resulted in feelings of dejection and confusion among the women studied (Stroink, 2004).

However, other research has found that women can develop a mindset of resilience or feeling that they are predestined to succeed during their childhood (Brooks Greaux, 2010; Yang, 2011). Women of color can gain self-perception, self-esteem and self-worth through ethnic socialization (Campbell, 2011; Davis, 2012; Telzer & Garcia, 2009; Wilder & Cain, 2011; Yosso, 2005).

In Black families, parenting practices commonly include ethnic socialization, where boys and girls are taught how to cope and to have a strong self-image in a society that can sometimes be hostile to ethnic differences (Clay, Ellis, Griffin, Amodeo, &

Fassler, 2007; Davis, 2012; Thomas & King, 2007). While boys are taught to identify and overcome ethnic barriers, girls are taught gendered ethnic socialization through ethnic pride, education and messages of financial and psychological independence.

In Black households, the parent that provides the most important expectations and values in the daughters' life is her mother (Clay et al., 2007; Davis, 2012; Thomas & King, 2007). As a result, their daughters grow up to be women who do not allow gender or ethnicity to become a barrier for their success. However they can also develop a façade of strength that prevents them from asking for help or admitting when things are going wrong. Black women are also taught to use their self-esteem and self-worth to gain strength and to push through or overcome barriers of discrimination (Clay et al., 2007; Davis, 2012; Thomas & King, 2007).

While more research is required in this area, it provides an indication of the factors that can lead to self-doubt by some women in pursing male-dominated career roles. The girls who grow up with a gender socialization that feeds low self-esteem experience the impact on their educational success, career choices, and emotional response (Chiu, 2010; West, Welch, & Knabb, 2002). In contrast, men, who also need this type of support, are not faced with this type of conflict. The people who provide these men with support and encouragement expect them to be leaders. Therefore it is also important to understand the impact of gender stereotyping on leadership effectiveness– both for the women who seek to rise in the organizational hierarchy, and for the men who control the access.

Barriers to the Advancement of Women

Women are underrepresented at the senior levels in corporate America. Several reasons are cited for this discrepancy including: (a) exclusion from informal networks, (b) stereotyping by men, (c) lack of general management or line experience, (d) lack of mentors and executive sponsorship, and (e) lack of political savvy or awareness (Anyaogu, 2013; Foust-Cummings, Dinolfo, & Kohler, 2011; Sanchez-Hucles & Davis, 2010; von Hippel et al., 2011; Wellington et al., 2003).

Similar barriers have been identified for women of color in industry research by Catalyst (Catalyst, 2003a, 2003b, 2004; Giscombe, 2011; Sanchez-Hucles & Davis, 2010; Thorpe-Moscon & Pollack, 2014) and peer reviewed literature, specifically (a) the exclusion from networks of influential others in the work environment, (b) the lack of high-visibility assignments, (c) stereotypes generated from the dual bias of ethnicity and gender, (d) low availability of women of color mentors, and (e) the effect of tokenism (Campbell, 2011; Davis, 2012; Doss, 2011; Ibarra, 1995; Iwamoto & Liu, 2010; Sanchez-Hucles & Davis, 2010; Scales, 2011; von Hippel et al., 2011).

Methods such as performance devaluation, silencing, crediting others for their success, and penalizing women for proving their competence are employed to discriminate against women as they seek to advance their careers (Doss, 2011; Giscombe, 2011; Murray, 2011; Sanchez-Hucles & Davis, 2010; Scales, 2011; Stroink, 2004; United States Bureau of Labor Statistics, 2013). Women of color experience the double marginalization that results from the intersection of ethnicity and gender. They also face the pressure of being the only one–many times being invisible and unheard, until they

make a mistake in a visible role (Bruckmüller & Branscombe, 2010; Byrd, 2009; Iwamoto & Liu, 2010; Kilian et al., 2005; Peterson et al., 2007).

Research indicates that successful female leaders adopt various approaches to overcome these barriers. This includes:

- Building a power-base of competency and expertise.
- Good verbal skills.
- Taking the risk of changing jobs.
- Adopting an interactive style of communication that is direct and open.
- Cultivating relationships with mentors, sponsors and coaches.
- Developing and communicating knowledge of the business.
- Developing employees through empowerment.
- Asking for high visibility assignments and roles that give profit and loss experience.
- Targeting board member positions at non-profits to get senior leadership experience.
- Developing a career plan and communicating with others who can help to make it a reality.
- Welcoming challenges outside their comfort zone.
- Encouraging autonomy (Anyaogu, 2013; Byrd, 2009; Giscombe, 2011; Hayes, 2008; Keown & Keown, 1982; Lowery, 2012; Marques, 2011; Miles, 2009; Murray, 2011; Parker, 2002; Scales, 2011; Williams, 2008).

Gender Stereotypes in Leadership

Gender stereotypes are defined as culturally common beliefs that are held about the differences in behavior, capabilities and characteristics of men and women (Chiu, 2010; Davis, 2012; Dennis & Kunkel, 2004). Masculine traits are described as task focused and agentic, while female traits are expressive, communal, sensitive to others, and nurturing. The achievement orientation or the drive to set and accomplish goals, that is expected and rewarded in men, is contrary to the gender stereotype for women, and not rewarded (Alford, 2011; Hewlett et al., 2008; Hopkins & Bilimoria, 2008;Johnson, 2013). Even with the emergence of transformational leadership, some typically feminine characteristics are dismissed even if they increase productivity (Dennis & Kunkel, 2004; Gibson, 2011).

The emergence of new leadership components through the introduction of the transformation leadership style has not changed the gender based power inequalities (Alford, 2011; Dennis & Kunkel, 2004; Gibson, 2011; Rutherford, 2001; Scales, 2011; Wang, Hinrichs, Prieto, & Black, 2010). Transformational leadership exploits skills traditionally viewed as strengths of women and is positioned as the *feminization of management*.

Unlike men, a higher level of emotional and social intelligence does not contribute to a woman's' success (Hopkins & Bilimoria, 2008). Women can still be marginalized and restricted to those positions that make use of their unique strengths, for example listening and relational ability. As a result, they can find themselves unsupported in those positions that require traditionally masculine skills (Alford, 2011; Combs,

2003;Johnson, 2013; Lester, 2008; Marques, 2011; Rutherford, 2001; Scales, 2011; Stainback & Tomaskovic-Devey, 2009).

As the numbers of women in leadership positions increase, women readily accept the effectiveness of female leadership traits. In contrast, men continue to hold to their stereotypical view of female leadership (Anyaogu, 2013; Davis, 2012; Dennis & Kunkel, 2004; Doss, 2011; Gibson, 2011; Sanchez-Hucles & Davis, 2010; Scales, 2011; Stainback & Tomaskovic-Devey, 2009). This could be due to their gender identity formation–men define themselves by differentiation from others, and need to make the distinction between male leaders (*us*) and female leaders (*them*).

Even with the emergence of transformational leadership, and the acceptance of emotional intelligence as a key management trait, the gender-based power inequalities between men and women in the organization continue to provide organizational barriers (Adam & Weiss, 2011; Anyaogu, 2013; Davis, 2012; Doss, 2011; Gibson, 2011; Scales, 2011). While men accept and use those skills that are demonstrated strengths of women, they continue to respond out of a gender-socialized bias to the performance of female leaders. This informs an evaluation of men with these transformational leadership skills as more effective leaders (Adams & Weiss, 2011; Anyaogu, 2013; Davis, 2012; Doss, 2011; Gibson, 2011; Scales, 2011).

Interpersonal skills such as motivation by inclusion, charisma and participation (the strengths of women) are in contrast with the leadership skills that are viewed to demonstrate competence (Cloninger et al., 2011; Eagly & Carli, 2003; Gibson, 2011; Hewlett et al., 2008; Marques, 2011; Rodriguez, 2011; Rutherford, 2001). While these

interpersonal skills are viewed as positive for men who adopt them, these skills may result in a backlash for agentic women.

Socially, women are expected to be *nice*, and maintain a historical social structure based on gender inequality where the dominant power (men) prescribes communal traits to the subordinate group–women (Alford, 2011; Hewlett et al., 2008;Johnson, 2013; Miller, 1986; Rudman & Glick, 2001; Sanchez-Hucles & Davis, 2010; Wolfram & Mohr, 2010). Men want women to be supportive, submissive and deferent, so women who obey these gender-based expectations are characterized as nicer than those who do not.

Overcoming Stereotypic Assumptions and Prejudice

For women to progress to upper management positions, they must be viewed as effective leaders (Anyaogu, 2013; Gibson, 2011; Giscombe, 2011; Hayes, 2008; Heilman, 2001; Hewlett et al., 2008; Hopkins & Bilimoria, 2008; Marques, 2011; Rodriguez, 2011; Yang, 2011). In many organizations, successful managers and effective leadership are described in masculine terms and associated with male characteristics (Alford, 2011; Brooks Greaux, 2010; Hewlett et al., 2008;Johnson, 2013; Kawakami, White, & Langer, 2000; Yang, 2011). Even with the increase of women in the workforce, male leaders are still characterized as being more competent than their female counterparts (Alford, 2011; Hewlett et al., 2008; Hopkins & Bilimoria, 2008;Johnson, 2013). As a result, many women adopt masculine characteristics in order to be viewed as effective leaders.

Earlier theorists such as Chodorow (1999) and Miller (1986) posited that men insulate their leadership position in the workplace in order to maintain their position of

power. This protects them from an environment that could render them powerless. Men continue to hold on to leadership as a masculine domain by defining and rewarding leadership skills in terms of masculine characteristics (Dennis & Kunkel, 2004; Eagly & Carli, 2003; Hewlett et al., 2008; Hopkins & Bilimoria, 2008; National Center for Women & Information Technology, 2014a; Rutherford, 2001; Scales, 2011; Stainback & Tomaskovic-Devey, 2009) .

As leaders, women demonstrate traits in the organizational environment that reflect their socialization. These feminine traits, however, can be viewed as leadership liabilities (Alford, 2011; Dennis & Kunkel, 2004; Eagly & Carli, 2003; Giscombe, 2011;Johnson, 2013; von Hippel et al., 2011). As a result, some women have deliberately adopted the masculine qualities that are accepted in leadership circles, in order to distance themselves from being classified as ineffective females (Hewlett et al., 2008; Lester, 2008; Livingston et al., 2012; Miller, 1986). Unfortunately, this leads to social consequences, when their actions are inconsistent with expectations of their gender. This is the backlash effect of leadership gender stereotyping.

Women face a double bind (Anyaogu, 2013; Davis, 2012; Doss, 2011; Gibson, 2011; Scales, 2011). In order to be viewed as effective leaders, they must adopt agentic behaviors, since agentic leaders are rated as more competent than androgynous applicants. However these behaviors are in conflict with gender expectations of caring and communality. Those who hold the gender expectations of warmth and communality may view women, who employ masculine or agentic skills, as lacking social skills. If they adopt gender aligned qualities that make them liked, such as deference to men,

careers or roles aligned with feminine characteristics, they are not respected (Alford, 2011; Cloninger et al., 2011;Johnson, 2013; Kawakami et al., 2000; Livingston et al., 2012; Rudman & Glick, 2001).

At the senior management level, many senior female managers adopt a masculine management style as a more accepted style (Hewlett et al., 2008; Lester, 2008; Livingston et al., 2012; Miller, 1986). Although it was in line with expected management styles, male peers often report that they viewed women who adopted this behavior as *unattractive*. Although adopting an agentic style garners respect and perceived leadership competence, it can also lead to social exclusion. Therefore the agentic competencies of dominance and aggressiveness would be more accepted in women when partnered with social skills, a relational, collaborative and partnering leadership style and demonstrated mindfulness or genuineness (Alford, 2011; Alvarez, 2002; Alvarez, Juang, & Liang, 2006; Brooks Greaux, 2010; Gibson, 2011; Harvey Nash, 2012; Hewlett et al., 2008; Iwamoto & Liu, 2010; Johnson, 2013; Kawahara, Esnil & Hsu, 2007; Kawakami et al., 2000; Rodriguez, 2011; Rudman & Glick, 2001; Rutherford, 2001).

Gender stereotyping may also be a key determinant of the glass ceiling experience of female leaders. Women, who present themselves as atypically strong and agentic in order to present the qualities valued in leadership positions, are judged to be less likeable than their male counterparts (Alford, 2011;Johnson, 2013; Rudman & Glick, 2001; von Hippel et al., 2011; Wang et al., 2010). Research has shown that gender stereotyping is not restricted to men–women also show preferential rating for other women leaders (Martell & DeSmet, 2001).

However, male leaders are often still preferred, specifically white male leaders, who traditionally attract more resources and support than white females or women of color. The impact of gender stereotyping is significant given the higher percentage of men in top leadership positions, and their ability to be negatively influenced by these perceptions of female leadership behavior when hiring, evaluating and promoting women (Alford, 2011; Anyaogu, 2013;Johnson, 2013; Marques, 2011; Martell & DeSmet, 2001; Murray, 2011; Sanchez-Hucles & Davis, 2010; Schein, 2001; Tarmy, 2012; Wolfram & Mohr, 2010; Wright, M. C., 2013).

The Importance of Mentors and Sponsorship

In order to progress to the upper organizational levels, women need the experience provided by high visibility assignments (Bruckmüller & Branscombe, 2010; Kilian et al., 2005; Lowery, 2012; Marques, 2011; Sanchez-Hucles & Davis, 2010; Toson, 2012). Compared to their White male peers, women are not given the immediate access to the informal social network often afforded to men through their mentors (Doss, 2011; Scales, 2011; Toson, 2012).

The first challenge faced by women is access to mentors (Hewlett et al., 2008, 2014). While same gender mentorship is understood and expected for White men, the number of women and ethnic minorities in positions or power to serve as mentors is limited. Therefore the competition for same sex mentors is fierce, and becoming more difficult as a result of organizational reductions.

The organizational position or exposure of women to potential mentors is an additional barrier, so women are often not provided with the access to high level mentors

(Doss, 2011; Kilian et al., 2005; Okurame, 2008; Scales, 2011; Toson, 2012). Women of color, unlike their White peers, may feel the additional pressure to approach potential male mentors carefully in order to avoid the approach being misconstrued as a sexual advance, or too aggressive. Those who do get a mentor may find themselves going through an overwhelming amount of effort to overcome the negative stereotypes of their ethnicity or gender held by their mentor.

Women need mentors to help them successfully navigate through the internal organizational politics, and to provide the advocacy required for access to organizational resources and psychological support (Brooks Greaux, 2010; Combs, 2003; Foust-Cummings et al., 2011; Gibson, 2011; Giscombe, 2011; Lowery, 2012; Marques, 2011; Murray, 2011; Okurame, 2008; Scales, 2011; Toson, 2012). The informal social systems or networks in organizations are instrumental to the development of organizational leaders.

The admission to these networks is usually based on ethnicity and gender, and as a result is not readily accessible to women or ethnic minorities. The result is that ethnic minorities often engage in these networks at lower rates. In fact, Black women face higher barriers to acceptance than their White male and female peers (Anyaogu, 2013; Catalyst, 2004; Combs, 2003; Davis, 2012; Doss, 2011; Gibson, 2011; Giscombe, 2011; Kilian et al., 2005; Sanchez-Hucles & Davis, 2010; Scales, 2011). For Black women the duality of their ethnicity and gender makes it both difficult for them to fit into the hemophilic network environment of their White peers and for those peers to accept them.

Research from Catalyst (Cooper, 2013; Foust-Cummings et al., 2011; Giscombe, 2011; Marques, 2011) found that women of color need support to uncover and navigate through the organizations' unwritten rules, the un-communicated cultural norms that govern the workplace. These rules include (a) focusing on stellar performance, (b) building a network of sponsors, mentors and coaches, (c) understanding and fitting in to the culture of the organization, and (d) learning how to communicate effectively. The importance of mentors to advancement is a consistent theme in the literature. However, it is risky for women of color to focus on a small number of mentors. They need a wide base of sponsors at the highest level of the organization who can aggressively communicate their results and support their career advancement (Cooper, 2013; Foust-Cummings et al., 2011; Giscombe, 2011; Marques, 2011).

Women also face the risk what is termed a *glass cliff*–of being awarded highly visible assignments without the support structure provided to their male White peers, which potentially positions them for failure (Bruckmüller & Branscombe, 2010; Lowery, 2012; Marques, 2011; Sanchez-Hucles & Davis, 2010; Toson, 2012). Mentors and sponsors also provide the support needed to avoid pitfalls that can turn a high-visibility assignment into a glass cliff. Research on this glass cliff phenomenon is not conclusive and warrants further exploration (Bruckmüller & Branscombe, 2010; Eahab & Nancy, 2011).

Women in Information Technology

Despite the higher salaries and low unemployment rates, midcareer female IT leaders are leaving the private sector at twice the rate of their male peers (Hewlett et al.,

2008; National Center for Women & Information Technology, 2014a). Most of these women who leave the private sector workforce are leaving after 10 to 20 years in the industry. The majority remained in the computing field, entering the public sector or becoming entrepreneurs. Others move to a nontechnical field. This results in women leaving the workforce before reaching their top earning and leadership potential (Hewlett et al., 2008).

IT women give several reasons for leaving the technical workforce - unconscious bias, isolation, supervisory relationships, promotion processes, hostile working environments, not getting credit for their work, exclusion from the men-only networks, extreme job hour expectations, a gendered approach to risk-taking and rewards, and competing life responsibilities (Adams & Weiss, 2011; Alford, 2011; Anyaogu, 2013; Hewlett et al., 2008; Johnson, 2013; National Center for Women & Information Technology, 2014a; Tahmincioglu, 2012).

Hostile Work Environments

There are industry reports of the male dominant culture in the technology field being hostile to women. Women in the Athena study (Hewlett et al., 2008, 2014) consistently spoke of environments where raunchy jokes and a locker room culture prevailed. When meeting peers for the first time, it was immediately assumed that they were the administrative assistant or the most junior person in the room.

The male dominant culture also promoted an attitude of discounting or silencing their contributions with the immediate assumption that their ideas would not be valid or technically sound (Hewlett et al., 2008, 2014). The study also found that many of these

women assumed apparel and attitudes that were more masculine (or underplayed their femininity) in order to make their male counterparts more comfortable. However they found that this behavior could backfire as it contradicted the gender expectations of their male colleagues (Hewlett et al., 2008).

Isolation

In the Athena study isolation or being the token woman without support or mentors impacted 38% of women in IT jobs in the private sector (Hewlett et al., 2008). Forty percent experienced a lack of role models, 67% reported a lack of mentors and 84% reported a lack of sponsors. Isolation results in low job satisfaction, engagement and contributes to women leaving their jobs. This study found that for IT women, a marginal 10% increase in the number of women in these male-dominated functions resulted in a dramatic change in the organizational culture. Women felt that they could access role models, and talk about work/life balance issues (Hewlett et al., 2008, 2014).

Promotion Process

Lack of clarity about career paths is another barrier faced by SET women (Adams & Weiss, 2011; Alford, 2011; Hewlett et al., 2008;Johnson, 2013). There is the difficulty of identifying sponsors, getting "stuck" in a position (which for women become an indicator of their low potential for promotion), or being forced to make lateral moves which negatively impacted their career progression.

Risk and Rewards

There is a gendered approach in IT that rewards crisis management mentalities (Hewlett et al., 2008, 2014) that is usually seen as those who mobilize and take extreme

actions (with high risks) to rescue the system, technology or similar potentially disastrous occurrence. What characterizes the men in these situations is that they usually have engaged a superior, sponsor or senior manager to provide air cover should the attempt fail or to manage any collateral damage from their actions. These sponsors also provide publicity as the man's actions are highly celebrated and rewarded (Hewlett et al., 2008, 2014).

Unfortunately for most technical women, this type of sponsor does not exist for them (Hewlett et al., 2008, 2014). As a result, they develop a reputation for being risk adverse. Those who do take the risks do so at the peril of not being given the same type of support (or cover) should the risk fail. Women also tend to take a more systemic approach by working on managing projects in a way that reduces the need for continual crisis management (Hewlett et al., 2008, 2014).

Execution Versus Creation

In the technical fields, the role of the being creative, or coming up with the next big idea, is a rewarded and applauded role (Hewlett et al., 2008). Many women however, find themselves pushed into the execution roles as their ideas are discounted, overlooked and in some cases, co-opted by the male peers. In addition to the impact on morale, this practice also impacts the woman's career mobility. With a sponsor, women are 70% more likely to have their ideas endorsed, 119% more likely to see their ideas developed, and 200% more likely to see them implemented (Hewlett et al., 2014).

Extreme Job Hour Expectations

There are higher job pressures in SET fields than in other sectors, with expectations that employees in these fields will need to spend long hours (over 100 hours per week) and be available at all hours of the day or night, work on or manage a global team and put in extensive office hours in-person (Adams & Weiss, 2011; Hewlett et al., 2008). For example in the case of IT, this could occur because of the need to be on call for a manufacturing plant system that runs at all hours of the day or night, or working with a development team based in India.

When women start to have families, some industry reports have stated that women appear to make decisions to stay in jobs that do not require travel, that they tend to request positions that keep them at the same level for longer periods, or accept lateral moves to jobs that take them off the promotion trajectory (Hewlett et al., 2008; 2014). For those women who make those decisions, during times of downsizing or reorganization, they are left without supportive advocates, sponsors, or access to the men-only networks. As a result their jobs would be at higher risk than their male counterparts (Adams & Weiss, 2011; Hewlett et al., 2008; 2014).

Women of Color in Information Technology

In 2013, 36% of employed IT women in the workforce were women of color (United States Bureau of Labor Statistics, 2014b). While the percentage of Asians is increasing, the percentage of Black and Hispanic women has been falling. It is possible that the lower numbers of Black women breeds more isolation. Black women report more

negative experiences (lack of career paths, feeling stalled in their careers) in the IT culture than White or Asian women (Hewlett et al., 2008).

Conclusion. The reported numbers of women in IT are relatively low. In 2013 only 8% of the global CIOs were women (Harvey Nash, 2013). The Harvey Nash surveys found that 35% of CIOs reported having no women in management roles in their organization, and 46% of CIOs surveyed reported having only one quarter of their management team made up of women. 14% of CIOs reported having no women in their technical teams, and only 20% of CIOs reported having balanced gender teams.

Over 50% of these CIOs believed that having women on their teams improved their relationship with their business partners, enhanced team morale and cohesion (Harvey Nash, 2013). The majority (84%) believed that there is a lack of qualified women candidates. While the strategic priorities of women and men CIOs are the same (with saving costs being the number one priority for both groups), women CIOs also focus on more change programs than their male counterparts, which increases the success rates of projects and using technology to engage better with customers (Harvey Nash, 2012; Harvey Nash, 2013).

Companies are beginning to experience a shortage of SET talent. The United States Department of Labor projects that by the year 2016 there will be 1.5 million computer specialist job openings in the United States, with job opportunities growing five times faster than other areas (National Center for Women & Information Technology, 2014a). The demand for these jobs is outstripping the supply. The Hewlett et al. (2008) study predicts that just bringing back (or preventing) the attrition of 25% of the current

female SET employees will add 220,000 highly skilled employees to this critical pipeline. It is beneficial, therefore to study the success factors that would encourage these women to aspire to senior leadership positions within IT.

Summary and Conclusions

Most leadership research literature for IT is ethnicity neutral–women of color are silenced or excluded. The few published articles that include ethnicity did not identify the gender. As a distinctive and unique group, these results cannot be generalized to IT women of color.

This chapter reviewed the literature search strategy, the theoretical foundations that framed the research and data analysis, and summarized the available literature. It has confirmed the absence of research available on the leadership success strategies of women of color leaders in IT. To address this gap, this study explored the personal and professional leadership journeys of 22 IT women of color leaders in corporate America. Chapter 3 will discuss the selected research methodology for the data collection and analysis of the experience of these women.

Chapter 3: Research Method

Introduction

The purpose of this phenomenological study was to investigate the experiences of women of color as senior IT leaders in order to understand the success factors that contributed to their ability to attain a senior position in IT. The research questions addressed how select demographic, individual, and organizational level factors served as predictors to women of color's presence as senior IT leaders in corporations. The phenomenological construct examined the essence of their lived experiences during the journey to their current position, in order to identify the key enablers to their success. Throughout this study, potential ethnic correlations were identified.

This chapter starts with a review of the rationale for selecting a qualitative research design, and an in-depth discussion of the phenomenological research tradition. This is followed by a review of the research methodology, including the logic used to select the research participants, the instrumentation used for data collection, and the procedure followed during participant recruitment, participation, and data collection. The data analysis process for phenomenological studies is described in the data analysis plan where the details of the procedure for coding, and an overview of the software that was used is provided. The chapter then closes with a discussion on the trustworthiness of the data (qualitative validation) and the ethical procedures that were followed.

Research Design and Rationale

Although prior research has studied the underrepresentation of women in IT, it has focused on White women, or assumed that the conclusions would equally apply to

women of color. A search of peer-reviewed sources on the success strategies employed by IT women of color leaders failed to uncover any relevant matches. To address this gap in the research, the following research question was examined:

1. How do women of color in IT leadership roles perceive their journey to obtaining and sustaining their position?
2. What are the strategies and skill sets that these women of color leaders believe necessary to achieve success in IT organizations? What leadership skills and styles do these women of color IT leaders believe contributed to their success within the organization?
3. What recommendations would they provide to aspiring women of color in IT organizations?

Quantitative Versus Qualitative Approaches

In selecting a research approach I examined quantitative and qualitative research methodologies to determine the best match to the research objective. Quantitative research requires the selection of a large number of participants, and the ability to minimize sample selection bias (Creswell, 1998; Denzin & Lincoln, 2005). The data is usually numeric and is collected using predefined instruments (surveys, etc.).

While qualitative research is focused on telling the story from the participants' point of view, quantitative researchers claim that their research is done from a value-free framework that is an objective, value-free analysis of causal relationships (Denzin & Lincoln, 2005). Qualitative data collection is focused on (relatively) small data sets that are carefully selected to represent the case under study (Punch, 1998). The data collected

is mostly non-numeric data: text, image, or multimedia data. The protocols for data collection are often developed during the study as more is learned.

Current research frequently references the experiences of women of color as a collective other group, making assumptions that the experiences of all ethnic minorities are the same. In addition, the data set is often too small for appropriate analysis. A survey of the available literature supports the claim that the ethnic minority IT female leadership experience is understudied, providing a need to use research methodologies that support the exploration of this area.

In an exploratory research approach, the researcher seeks to explain the occurrence of differences by taking an open-ended approach to let the data lead the researcher through the analysis (Punch, 1998; Singleton & Straits, 2005). Qualitative approaches are used to provide a detailed view of topics, by studying individuals in their natural settings, and asking research questions that seek to understand the nature of the phenomenon.

An inquiry approach is useful for exploring and understanding a central phenomenon (Creswell, 2002). To learn about this phenomenon the inquirer asks participants broad, general questions, collects the detailed views of participants in the form of words or images, and analyzes the information for description and themes. From this data the researcher interprets the meaning of the information, drawing on personal reflections and past research. The final structure of the report is flexible and it displays the researchers' biases and thoughts (Creswell, 2002)

A qualitative approach provides the exploratory foundation that is required to trace the life journey of the female IT woman of color leaders selected for this study (Creswell, 1998). The qualitative research methodology is aligned to both the research type (exploratory) and data collection and analysis approach (small, targeted data set), and was selected for this study (Denzin & Lincoln, 2005; Punch, 1998).

The Phenomenological Approach

Qualitative research allows for expression of the experience in an open manner that does not restrict or presume the results of a framework (Creswell, 1998; Denzin & Lincoln, 2005). There are several types of qualitative research design–case studies, ethnography, grounded theory research–to name a few. However, phenomenology makes it possible to gain a holistic view of the general themes and essence of individuals' experiences in order to understand what it means for them to have had those experiences.

The approach allows the data to speak to the researcher, with sense making being provided by those in the research. This involves the researcher in identifying the essence of human experiences by regarding the research participant's description of the phenomenon (Creswell, 1998; Leedy & Ormrod, 2005). In this case, the researcher is the instrument in the study, not a questionnaire, survey or the other data collection tool. The researcher derives evidence from these first-person perspectives.

Phenomenology is about providing a description of the *what* of the experience rather than explanations (the why) of the experience and will bring to light the meaning individuals derive from their experiences (Moustakas, 1994). The phenomenological approach describes the meaning of the experiences of a group of individuals who lived or

are living through a particular phenomenon e.g. grief, isolation, loneliness (Creswell, 1998; van Manen, 1990).

By using this method, I studied and explored the lived experiences of the IT women of color leaders to understand the meaning for these participants, to understand their context, and to uncover information that provides understanding of the process by which the events took place. The participant is involved in the development of explanations (Østergaard, Dahlin, & Hugo, 2008). As such it is the appropriate tool for research within leadership, diversity, feminism, and women studies. It has been used to explore the perspectives of ethnic groups and leadership expression within organizations, and to get a deep understanding of the problem.

Role of the Researcher

My role is one of an observer-participant. I am a Black woman who has worked in IT for over twenty years in progressively responsible leadership roles at two Fortune 100 companies. I have personally identified and used several strategies in support of the successful progression to senior IT leadership positions. In addition, I have mentored women of color to successfully identify and overcome many of the barriers documented in the literature review, for their career advancement.

Using the phenomenological method of epoche, I have taken the approach of identifying those biases or pre-conceived ideas that could prevent me from approaching this with an open, non-biased perspective. In attaining senior IT leadership positions that brought me within four levels of the CEO, I could be considered an appropriate candidate for this study, and following the process of Moustakas (1994), I spent time documenting

my experience and going through the data analysis process for my experience before starting the analysis of the interview data.

Through this self-reflective process, I became aware of my strong advocacy for the advancement of IT women of color–as exhibited in my role as mentor throughout my career. In addition, I am sensitive to language that intentionally diminishes the contribution and potential of these women. It is extremely important that the voice of these leaders be heard without filters or the mask of political correctness. It is with this mindset that I developed an interview guide (see Appendix A) that sought to provide prompts and probes to guide the expression of the participants' leadership journey in her own voice.

By using an unstructured interview approach with probing questions encouraging narrative versus short answers, my stance was that of an observer who seeks to ensure the full experience (leadership journey) is chronicled. I was also aware that while I may be viewed as aligned to the Black community (as a Black woman), my culture, training and early career experience has been Caribbean. Therefore I saw myself as having in-group status with the participants as a fellow ethnic minority female executive, but out-group status with respect to understanding the cultural impact of their ethnic group.

The in-group status helped with my approach to recruit candidates, and to build rapport and credibility through shared experiences with career barriers. My insider position as an Black woman in the IT field who has worked in the Fortune 1000 community provided increased opportunity for access. As a fellow ethnic minority, it helped to remove fear of exploitation. As an interviewer, I spent time listening, and

taking cues from interviewees. The shared culture and class assumptions provided a foundation for common understanding of areas to explore.

The out-group status allowed me to retain objectivity during the interview process and the analysis of the results. In order to avoid or minimize the personal bias that may impact research process, I realized that I am sensitive to research that exploits ethnic minorities and women in general. With that, I was resolved to be accurate, to remember that my role was as a researcher not a protagonist.

Personal and Professional Relationships with the Participants

I have personally worked with or been mentored by some of the women who participated in this research. However at the time of the data collection and analysis, I was not employed by, or consulting with any of the participants.

Researcher Bias and Power Relationship Management

As disclosed earlier, I was a member of the group that is under study, ethnic minority female leaders in IT in corporate America. While this provided an opportunity to speak to a participant as a peer, in many cases the women who were selected for the study have operated at executive levels within their company for several years. This position of power was reflected in the way the women related to the study and was apparent in the nature of the interview process. Although I entered the interview process with specific objectives, I was aware that a few of the participants had a lot of information to share, and required guidance in order to keep us on track and within the allotted interview time. Keeping the interview guide short and fluid allowed the participant to operate within the power paradigm that suited her leadership style.

Additionally I was aware of my bias towards any barriers that are aligned with my experience both in my career and in those that I have mentored. In order to prevent the trap of guiding a conversation towards the predetermined answer, I completed a process of self-reflection after each interview to review what happened, triangulated the information gathered through published data wherever available, and allowed the participants to review and to check the results of the analysis.

Methodology

Participant Selection Logic

The criterion for inclusion of participants in the study is women of color (Asian, Black, Hispanic or *Other Females*) that are in leadership positions in IT in corporate America. Common titles that were used to guide the selection are Principal Consultant, Associate Partner, Partner, Senior Manager, Director, Senior Director, Vice President, President, Chief Information Officer (CIO), and Chief Technology Officer (CTO). Published data for the size of this population does not exist.

Sampling strategy. The study used a purposeful sampling approach to identify research participants. In purposeful sampling, individuals who represent the phenomenon being studied are intentionally selected (Creswell, 2002). This type of sampling is normally used for qualitative studies to ensure the subjects studied meet criteria that are aligned to the purpose of the study

The population under study was ethnic minority female leaders at a senior leadership level in IT in corporate America, and in support of identifying participants who meet that specific criteria, the purposeful sampling strategy selected was

homogenous sampling. In homogenous sampling the researcher uses the unique characteristics of the population to determine the participants for the research sample (Creswell, 2002).

The phenomenological method uses in-depth, unstructured or semi-structured interviews to collect data. Sample sizes range between five to 25 participants who have experienced the phenomenon and are willing to participate in the interview process (Creswell, 1998; Leedy & Ormrod, 2005). In line with the research methodology, I sought to identify at least 15 women to participate in the study.

Instrumentation

In phenomenology, the long interview is used to collect the data for the study. It allows the interviewer to collect information using an iterative, open-ended approach that encourages the participant to describe their experience in a comprehensive, unstructured manner (Moustakas, 1994). Unlike a survey-questionnaire interview where the questions are viewed as a consistent stimulus to provide consistency across the responses, the phenomenological interview is a discourse or conversation with the participant.

The researcher seeks to get a description of the experience, and understand the meaning of the phenomenon through the eyes of the participant (Creswell, 2002; Leedy & Ormrod, 2005). In this manner, the researcher seeks to avoid questions that will place the phenomenon in specific pre-defined categories or themes and remain open to new and unexpected factors that emerge during the conversation (Polkinghorne, 1989).

Face-to-face interviews have a high response rate (up to 80%), and are an excellent way to gather complete answers to open-ended questions and questions that

explore sensitive issues (Singleton & Straits, 2005). One of the disadvantages of face-to-face interviews is their high cost, which includes the interviewer's travel and other administrative expenses. In addition, given the nature of the target population, and the ability to access the interviewees it may be difficult to schedule a face-to-face interview within the required research time period.

Phone interviews have response rates that approach that of face-to-face methods. They can be conducted at lower costs and support centralized quality control/supervision. Disadvantages include the need to simplify questions in order to allow the respondent to quickly understand and retain the question while providing the answer. Respondents may also be reluctant to discuss sensitive issues or deviant behavior in an environment where they cannot build a sense of rapport with the interviewer (Singleton & Straits, 2005).

The interview protocol selected was an unstructured interview (Creswell, 2002; Leedy & Ormrod, 2005). In order to guide the discussion, a few broad, topical questions (prompts) were developed in line with the procedure outlined by Moustakas (1994) and aligned with the procedure noted by Polkinghorne (1989). The number of question prompts was limited to nine in line with the guidance from Stewart & Shamdasani (1990), and Creswell (1998). These questions were used to generate a rich, complete description of the participants' experience with the phenomenon.

Interview script. An interview script (see Appendix A) was developed for use by the researcher in the interviews.

Demographic questionnaire. Before each interview, the participant was provided with a short demographic questionnaire (see Appendix B) that was used to provide additional information for data analysis and triangulation of the findings.

Additional documentation collection. In addition, archival data was collected via publicly available reports, biographies, press releases, company websites, published books and articles, resumes, etc. This was used to provide additional information on their leadership journey and give additional support for triangulation during analysis.

Procedures for Recruitment, Participation and Data Collection

After the approval of the IRB (approval number 08-20-14-0100911), each potential participant received an email inviting her to indicate her interest in participating in the research (see Appendix C). They were provided with the opportunity to schedule a follow-up phone call to provide additional information and address any questions. These initial invitations were sent directly from the researcher to the potential participants or to those in her network that knew potential candidates. As a result of this process the target number of 15 participants was surpassed without the need to make unsolicited calls.

It was anticipated that by using this approach a relatively high response rate from those interested in participating in the research would be achieved. However there was the risk that the women would not be available to be interviewed during the time period allotted for this activity, or that interviews, once scheduled, would be cancelled. I mitigated that risk by receiving consent forms and scheduling 22 participants for interviews. All participants kept their scheduled appointments. Nineteen interviews were conducted via conference call, and three were face-to-face interviews, with the researcher

as the sole interviewer. The complete series of interviews (1-hour sessions) were scheduled in advance to reduce scheduling risks.

All interviews were recorded in line with the IRB approved consent form (see Appendix D) signed by the participants. Interviews were transcribed and reviewed for accuracy. In addition participants received a copy of their interview transcript. In place of a summary of the transcribed interview, participants were provided with the full transcript of their interview in order to provide them with complete access to their information, and to review it for accuracy and verification. Following protocol to keep the interview confidential, only the researcher was involved in the transcription process. Written transcripts were stored in encrypted files on the researchers' hard disk and not loaded on shared drives or on internet sites.

Demographic data was also collected via a pre-interview questionnaire. This provided additional context for the interpretation of the data collected in the interview. Questionnaire information was stored with the appropriate written transcript on the researchers' local hard disk (in encrypted files) and not loaded on shared drives or on internet sites. Other supplemental data that was collected from the public domain (news releases, presentations, websites, etc.) was stored with the written transcripts.

Data Analysis Plan

Phenomenology leads to a true description of the human experience without the researchers prejudice, beliefs and ideologies that would bias understanding (Creswell, 1998; Moustakas, 1994; van Manen, 1990). There are four core processes in

transcendental phenomenological data analysis (Leedy & Ormrod, 2005; Moustakas, 1994; Punch, 1998):

- Epoche
- Transcendental-phenomenological reduction
- Imaginative variation
- Synthesis of meanings and essences.

Epoche is the process of setting aside one's prior judgment and knowledge in order to be open to understanding the phenomenon in a fresh, unbiased manner (Moustakas, 1994). The researcher starts by suspending judgment (epoch), bracketing or separating out his or her preconceptions about the phenomenon and focuses on understanding the phenomenon only through the experiences of the individuals. Van Manen (1990), and Leedy and Ormrod (2005) recommend that researchers bracket their own understanding, beliefs, biases, theories and assumptions by developing a full description of his or her experience with the phenomenon in order to surface them and make them explicit.

The epoch process allows an unobstructed and more accurate insight by enabling an in-depth understanding of the phenomenon from the participants own voices (Creswell, 1998; Moustakas, 1994). The epoch activity occurs several times during the process–before the development of the interview questions or prompts, before each interview and as the first step of transcendental-phenomenological reduction (Leedy & Ormrod, 2005; Moustakas, 1994).

Transcendental-phenomenological reduction is used to break apart and examine each aspect or component of the phenomenon. These individual units or experiences are then woven into a full textural description of the phenomenon (Moustakas, 1994). The steps (Leedy & Ormrod, 2005; Moustakas, 1994) include:

- Bracketing or focusing on the research while setting everything else aside.
- Horizonalizing:
    - Identifying statements that relate to the topic and initially giving each statement equal value or weight.
    - Removing statements irrelevant to the phenomenon.
    - Developing a list of non-repetitive, non-overlapping statements.
    - Developing groups (horizons) from the list of statements.
- Clustering of the horizons into themes.
- Developing and constructing a composite description of the texture of the phenomenon from the horizons and themes (Creswell, 1998; Moustakas, 1994).

This builds out the essence of the phenomenon under study providing a common description of the experience and how it was experienced.

The third step–imaginative variation–is the process of identifying and synthesizing the structural underpinnings and essence of the experience by sifting through the cognitions that relate to the experience and transforming them into a structural description (Moustakas, 1994). Taking the textural descriptions developed during transcendental-phenomenological reduction, the researcher will start by varying

the structural meanings of the textural meanings in order to identify the underlying themes or contexts that trigger the emergence, thoughts and feelings for the phenomenon. This is followed by looking for examples that illustrate the structural themes and help to support the development of a structural description of the phenomenon (Creswell, 1998; Moustakas, 1994).

In order to support the analysis of the qualitative data, the computer program QSR NVivo (formerly NUD*IST) was used. It supported the identification of the salient themes, recurring ideas, and the patterns that connect people and settings together (Creswell, 1998; Punch, 1998). It was used to identify the topology of the data, providing constant comparison analysis and supporting this researcher in comparing them against others or against different stages in the lifecycle.

This approach to data collection and analysis facilitates exploration, provides in-depth understanding and ensures that the researcher delivers the best strategy for the study (Creswell, 1998).

Issues of Trustworthiness

In quantitative social science research, validity is measured in the context of the validity and confidence in the measurement instruments (Polkinghorne, 1989). However in phenomenological research, the validity is measured by the ability of the researcher to persuade readers about the accuracy of the findings (Polkinghorne, 1989) . The researcher must demonstrate that the transformation from raw data into informed, meaningful expressions is valid. There must also be an appropriate synthesis of this informed meaning into a general structural description.

In the end, the researcher convinces the reader that the common themes and examples collected support the structural description (Polkinghorne, 1989). Polkinghorne (1989) lists five issues that need to be addressed to ensure validity: interviewer influence on participant description, transcription accuracy, bias in transcription analysis, traceability between general structural descriptions and specific accounts of the experience, and generalizability of the structural description to other situations.

To address the interviewer influence on participant description of their experience, I completed a process of self-reflection before each interview in order to bracket any presuppositions or assumptions that could influence my ability to objectively listen to the participants account during the interview. The use of an unstructured interview method supported the creation of an interview environment that permitted an open discussion of the underlying themes of the experience being investigated in the voice of the participant (Polkinghorne, 1989).

During the interview, I managed any verbal or non-verbal responses that could be viewed as interpreting or providing theoretical explanations of the experience being described. In addition, the process of pre-reflection allowed me to be aware of pre-conceived categories (e.g. the types of barriers) for analysis and to be alert and open to new and unexpected experiences.

The accuracy of the transcription of the audio content to written form was maintained in the following manner:

- An initial version of the transcript was developed using NVivo.

- I reviewed every written transcript for accuracy and completeness (as checked against the audio version). If words were unclear (or ambiguous in meaning) they were flagged for follow-up with the participant.
- Instead of a written summary, the complete interview transcript was prepared and shared with the participant. The participant was given the option of making corrections, changes, deleting sections of the interview or opting out of participating in the study.
- Only the approved content was used in the analysis.

To address the final three areas of bias in transcription analysis, traceability and generalizability, I used the process of bracketing before the starting the analysis in order to identify and address biases and assumptions related to the interpretation of the data, and removed them from the context of the study. By using NVivo software, I had the tools to classify, sort and arrange information, including the coding of themes and visually exploring connections between themes. This provided traceability between the transcript, the structural themes identified, and the final conclusions documented.

Triangulation was used to compare multiple data sources in order to confirm the validity of the research findings (Leedy & Ormrod, 2005). In some cases, given the leadership level of the women interviewed, information was available in the public domain in the form of resumes, biographies, company announcements, press releases, books, etc. Where this was available, I reviewed the material and included this in the analysis.

In addition, after each interview, I documented impressions, additional remarks shared by participants to aid in the analysis of the interview transcript and to use as input to follow-up or clarifying questions. Member checking is the process of researchers following up with the research participants to determine if the findings were accurate. Participants will be given the opportunity to review interpretations of the data, and evaluate the credibility of the conclusions drawn (Creswell, 1998).

Transferability will be established through the use of thick description and participant variation. Thick description was used during the write-up of the findings in Chapter 4 and supported through the use of the features of NVivo to link the themes to the transcript content. Participant variation was built-in to the selection procedures and the nature of the relatively small number of women who qualify for this study. The sample contained women from various American companies, and was not restricted to the same company, sector, ethnic group or geographic location.

Ethical Procedures

The requirements of the IRB were followed to ensure adequate protection of privacy and confidentiality. The participants were asked to sign consent forms, which were reviewed with the candidates before the interview. This included their right to withdraw, and place restrictions on the use of their information and publication of the digital recording and transcripts. I informed the candidates that their names would not be published, and their data will be aggregated with other participants in all reports. Profiles were submitted without names or identifying information as part of the dissertation.

In addition, the interviews were conducted in a location of the participants choosing in a manner that provided appropriate privacy i.e. reduced the risk of the conversation being overheard. When the interview occurred over the telephone, I ensured that my location was private. It was expected that participants would provide names of employers, bosses, co-workers, etc. during the course of the interview. This information was also appropriately coded in order to protect the privacy of these parties, while maintaining the appropriate context of the information shared. For example the name of a former boss was listed at Person 1 with the note that a pseudonym was used.

The digital recordings from the interviews were stored on a USB drive and kept in a locked cabinet in my home office until written transcriptions were completed and validated. For the purpose of the research and follow-up, there were two versions of the transcripts. The original transcript or verbatim version of the digital recording, consent forms, and demographic data were stored as encrypted, password-protected files on a USB drive in a locked cabinet in my home office. This data will be destroyed five years after initial recording.

In addition, a modified transcript and demographic data form with coded references to the participant and any other personally identifiable data was stored in an encrypted, password protected file on my local computer hard disk. This version will be used for subsequent analysis, and destroyed (files deleted from local drive) 10 years after the approval of the dissertation.

I was not employed by the companies of any of the women participating in this study at the time of the interviews. This was to eliminate any conflict of interest issues or

risks. Some of the women at this level have been included in other research reports, books, or articles and are comfortable with speaking about their career journey. I do not anticipate that there will be risks to the career of the participants; however participants were reminded before, during and after the interview that their participation was voluntary.

The participants had the opportunity to ask for the recording to be stopped, information deleted (not included) from the recording, and for information to be deleted (not included) from the transcript. In addition, they could review the recording, and transcript of the interview and request that information be deleted or changed. Ultimately, the participant had the option of deciding not to participate in the research, and to request that all information associated with her participation (including any recordings and data collected) be destroyed. In that case I would have sent the participant a formal confirmation when all data collected has been destroyed. To counter the risk to the integrity of the sample due to participant attrition, I recruited (and scheduled) a sample size of 22 participants. All 22 participants were interviewed for this study providing the opportunity to strengthen the representation of perspectives in this diverse community.

As an incentive for participating in the study, the participants will be provided with an executive summary of the research findings. The women in this study are generally advocates for diversity within their own organizations, and would welcome the opportunity to receive information that will support their own internal programs.

Summary

The purpose of this chapter was to detail the rationale for selecting the phenomenological research tradition, the logic used to select the research participants, describe the approach to data collection, discuss the data analysis methodology and address questions on trustworthiness, validation and ethical procedures. A key benefit of the phenomenological perspective is that all information about the phenomenon is completely drawn from the human experience. (Polkinghorne, 1989). Through the use of the methodology described in this chapter, I had the opportunity to hear the participants' leadership experience in their own voice, to develop the transformed meanings, and to extract the merged structural descriptions that are supported by the data.

Chapter 4: Results

Introduction

The purpose of this phenomenological study was to investigate the experiences of women of color as senior IT leaders in order to understand the success factors that have contributed to their ability to attain a senior position in IT. The interview results are presented in this chapter, which begins with a review of the participants' demographics, in order to provide context to the interview findings. This is followed by a brief review of the data collection procedures, and a discussion of the data analysis procedures applied to the interview data collected. This will be followed by a review of the evidence of trustworthiness. Each research question will then be addressed using the findings from the interviews. The chapter will close with a summary of the research findings.

Demographics

Twenty-two women completed the interview process. Although demographic data was collected for a wide range of variables (see Appendix B), in order to protect the confidentiality of the participants, only an extract could be shown below in Table 1. Given the relatively low numbers of women of color in senior leadership roles in IT, the identity of these participants could be discovered through their demographic data. However graphs were prepared to provide the characteristics of the sample population and will be reviewed in this section.

Table 1. *Participant Demographics*

Participant Code	Ethnicity	Company Size (no. of employees)
AA001	African American or Black	Fortune 500 (2014 ranking)
AA003	African American or Black	Fortune 500 (2014 ranking)
AA005	African American or Black	Medium Business (1,000 - 9,999)
AA006	African American or Black	Enterprise or Large (>10,000)
AA007	African American or Black	Enterprise or Large (>10,000)
AA008	African American or Black	Fortune 500 (2014 ranking)
AA009	African American or Black	Fortune 500 (2014 ranking)
AA010	African American or Black	Small Business (<100)
AA011	African American or Black	Medium Business (1,000 - 9,999)
AA012	African American or Black	Enterprise or Large (>10,000)
AA013	African American or Black	Fortune 500 (2014 ranking)
AA014	African American or Black	Medium Business (1,000 - 9,999)
AS001	Asian	Enterprise or Large (>10,000)
AS002	Asian	Small-Medium Business (100 - 999)
AS003	Asian	Fortune 500 (2014 ranking)
AS004	Asian	Enterprise or Large (>10,000)
E001	Other Female	Small Business (<100)
E002	Other Female	Fortune 500 (2014 ranking)
E003	Other Female	Fortune 500 (2014 ranking)
E004	Other Female	Small-Medium Business (100 - 999)
H001	Hispanic	Fortune 500 (2014 ranking)
H002	Hispanic	Fortune 500 (2014 ranking)

The demographic classification sheets were analyzed on the following characteristics: age group, birth country, ethnicity, education level, marital status, company size, years employed, corporate seniority, primary industry, and participant title. In order to further protect the confidentiality of the candidates, any groups with 1 participant was merged into a higher-level category or grouped as “Other”.

Age Group

The majority (64%) of the participants were between 36 to 55 years. Two participants did not provide their age and were categorized as unassigned.

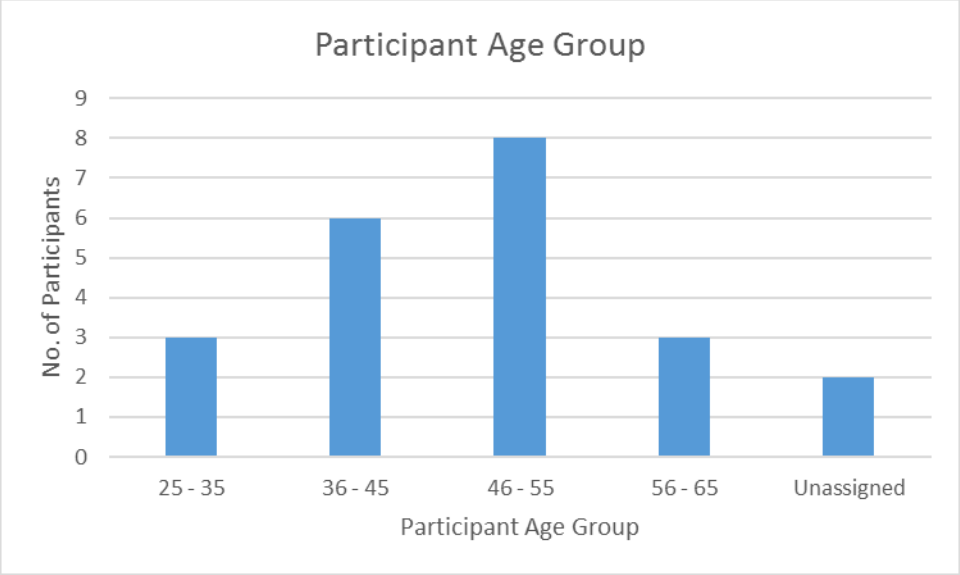

Figure 3. Participant Age Group Chart

Birth Country

While all the participants were United States citizens or United States residents, eight of the participants were born outside of the United States. It appeared that although the perspective of not being born in the United States created additional barriers for some of the women (additional discrimination based on their speech) or their perceptions of ethnic definition, their resilience and coping strategies mirrored those that were born in the United States.

Ethnicity

In developing the demographic questionnaire, the three categories established by the United States Census bureau were African American or Black, Hispanic and Asian.

Fifty-five percent of the participant pool was Black women, 18% Asian women and 9% Hispanic.

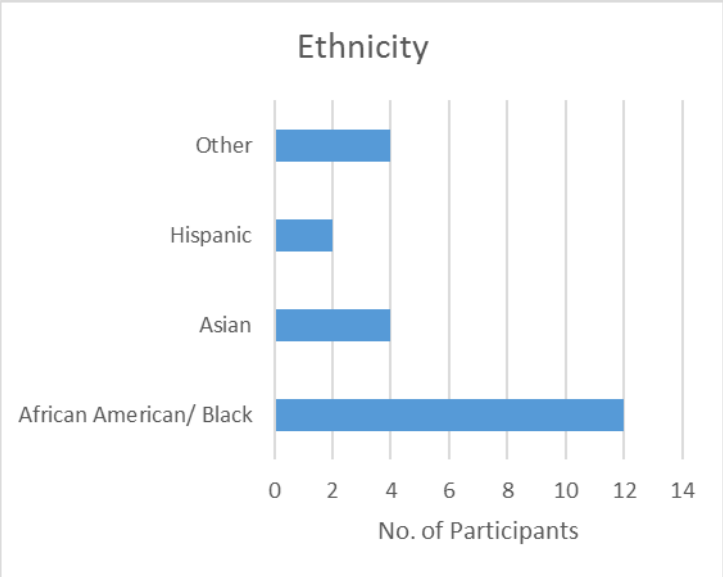

Figure 4. Ethnic Composition of Sample

In collecting the demographic data, 18% of the participant pool created an additional category of "Other" or selected multiple ethnic categories to define themselves. This is a reflection on the discussion of ethnicity and the decision for some women to be defined outside of the parameters established by the United States Census bureau. The impacts on the findings are addressed in the Results section, and the implications are addressed in Chapter 5.

The interview analysis suggested that many of their experiences were similar and were reported as the experience of a homogenous group (women of color). However there were a few areas where their experiences could be differentiated based on ethnicity. When this occurred, it was highlighted in the results in this chapter, and in the analysis in Chapter 5.

Educational Level

All participants were college educated–with 55% having a graduate or postgraduate degree. Data was not collected in the demographic questionnaire on the type of degree i.e. technical versus nontechnical, but that information was provided in the interviews and coded accordingly. Additional information is provided in the Results section in this chapter.

Marital Status

Slightly more participants were married (60%) versus being single or divorced.

Company Size

The majority of the participants were from companies with annual revenue over $60 million. In alignment from the scope of this study all were employed in corporate America.

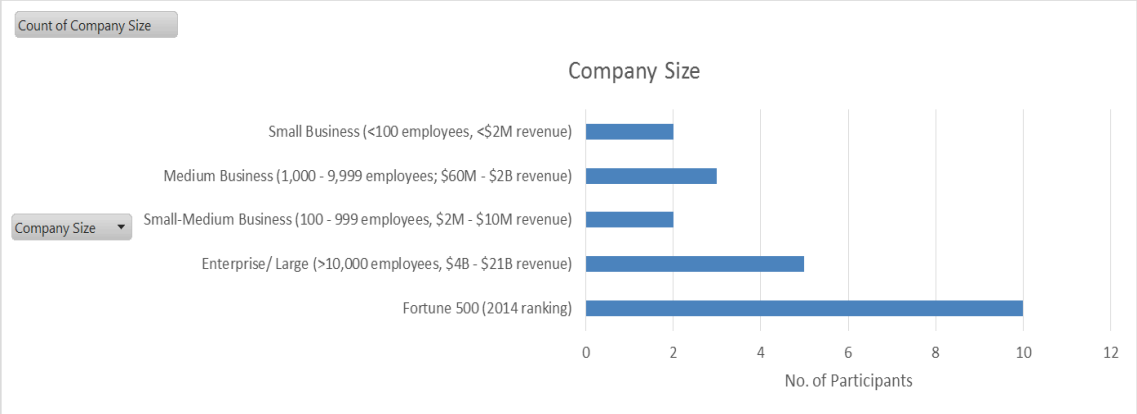

Figure 5. Chart Showing Company Sizes for Participant Pool

Corporate Seniority

From the data provided, ten of the participants were within 3 levels of the Corporate CEO, with 3 participants holding the title of CEO or CIO. Eight of the

participants were within four levels of their corporate CEO indicating that the sample met the requirements for research on senior and executive leaders in Corporate America. Four of the participants did not provide this information.

Office Location

The majority of the participants were from offices on the East Coast (New Jersey, New York, Pennsylvania, and Washington DC).

Primary Industry

68% of the participants worked in Pharmaceuticals or IT companies.

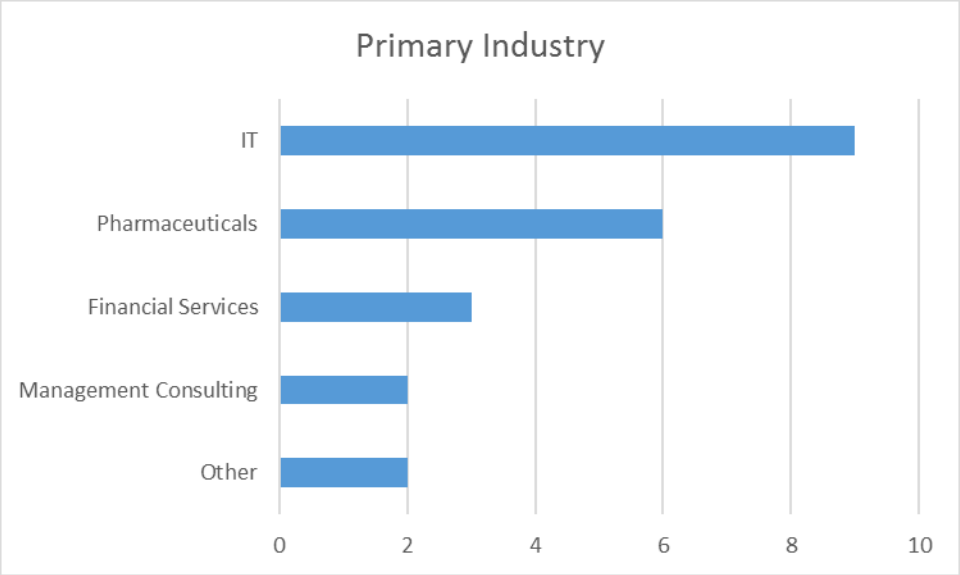

Figure 6. Chart Showing Primary Industries of Participant Pool

Participant Title

A review of their job titles confirmed that the participants were within the required selection criteria, and represented Executive and Senior Management positions within their organization.

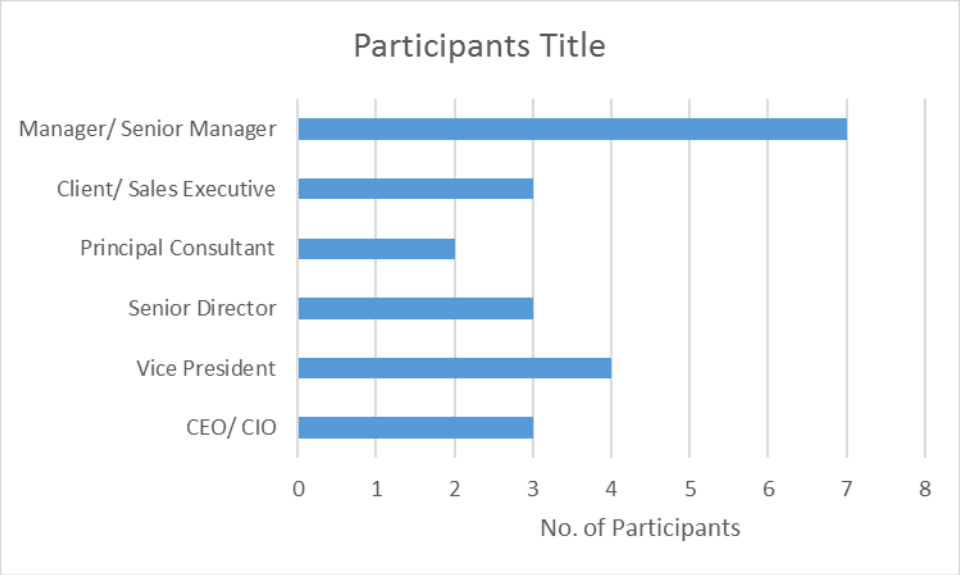

Figure 7. Chart of Participant Organizational Titles

Years Employed

Fifty percent of the women in this study were in the mid-point of their career (10 to 20 years). Given the industry data that 56% of women leave during this point of their career, the results from this study will address the factors that influenced their decisions to stay in IT.

Figure 8. Chart Showing Number of Years Employed

Data Collection

After the approval of the IRB (approval number 08-20-14-0100911), participants were recruited following the procedures outlined in the Methodology section. A higher number of participants than required for the study were recruited in order to mitigate the risk that women may indicate interest and then not be available to be interviewed during the time period allotted for this activity, or that interviews, once scheduled, would be cancelled. Twenty-two participants indicated their consent to be interviewed via signed consent forms, and all interviews were held as scheduled. This resulted in a higher number of participants than the original target sample size of 15 participants, increasing the richness of the data collected.

In order to accommodate the availability of the participants and the technology available to them at the times of the interviews, the majority of the interviews were conducted via a teleconference call. Three interviews were conducted in person as face-to-face interviews. I was the sole interviewer. Although one hour was scheduled for each interview, the average length of each interview was 42 minutes.

All interviews were recorded via the teleconference software (freeconferencecalling.com) with a backup recording on my IPad. Interviews were then transcribed and reviewed for accuracy. Interviews were coded (people names, company names, participant names) in order to anonymize the transcripts. In order to provide full transparency to the data collected, and to demonstrate to the participants that their privacy was protected, participants were provided with the complete coded transcript instead of a

summary of the transcript. These coded transcripts were placed in password-protected files and emailed to the participant. The participant was then asked to provide an email address or phone number to receive the password to open the file. This was done to protect the participants' privacy, ensuring that only the participant would be in a position to open her file.

Participants were given the opportunity to edit, delete or add any information that they felt appropriate, and to correct any incorrect impressions that were represented in the transcripts. Participants were told to respond with changes and given the opportunity to opt-out of the research. None of the participants asked for changes to their transcripts or opted-out of the research. Written transcripts have been stored in encrypted files on my hard disk.

Demographic data was collected via a pre-interview questionnaire. These questionnaires have also been stored on my hard disk. Other supplemental data was collected from the participants' LinkedIn profile, and used to triangulate the data in the demographic questionnaire and the interview. Downloaded copies of these LinkedIn profiles were stored on my hard disk.

Data Analysis

Phenomenology leads to a true description of the human experience without the researchers prejudice, beliefs and ideologies that would bias understanding (Creswell, 1998; Moustakas, 1994; van Manen, 1990). I followed the four core processes in transcendental phenomenological data analysis (Leedy & Ormrod, 2005; Moustakas, 1994; Punch, 1998) assisted by the NVivo 10 software:

- Epoche.
- Transcendental-phenomenological reduction.
- Imaginative variation.
- Synthesis of meanings and essences.

Epoche is the process of setting aside one's prior judgment and knowledge in order to be open to understanding the phenomenon in a fresh, unbiased manner (Moustakas, 1994). As documented in the methodology chapter, I conducted this process by documenting my responses to the interview questions, followed by identifying and documenting my biases and assumptions. These were provided in the methodology chapter.

Transcendental-phenomenological reduction is used to break apart and examine each aspect or component of the phenomenon. These individual units or experiences are then woven into a full textural description of the phenomenon (Moustakas, 1994). The steps (Leedy & Ormrod, 2005; Moustakas, 1994) include bracketing, horizonalizing, clustering the horizons into themes and developing and constructing a composite description of the "texture" of the phenomenon from the horizons and themes.

Bracketing was accomplished by establishing two journals for the project in order to capture any thoughts or ideas that could compromise the horizonalizing activity. The research journal was used to document activities and any general themes or ideas identified during the analysis. The second journal, the "parking lot journal", documented any follow-up questions that were triggered by the horizonalizing activity.

The first phase of horizonalizing was conducted by coding four representative interview transcripts (one from each ethnic group). This process generated 292 groups (horizons), which were captured as nodes in the NVivo 10 software. These nodes were clustered into preliminary themes and a composite description of the texture of the phenomenon established by structuring the nodes into 24 trees using the NVivo software.

With this basic structure in place, the process was repeated with the remaining 18 interview transcripts. This was an iterative process, with some transcripts being revisited as new groups emerged from the data. At the end of this process, there were 20 node trees (themes), with 419 nodes (or horizons) and 1,712 coded statements. This built out the essence of the phenomenon under study providing a common description of the experience and how it was experienced.

The third step–imaginative variation–was the process of identifying and synthesizing the structural underpinnings and essence of the experience by sifting through the cognitions that relate to the experience and transforming them into a structural description (Moustakas, 1994). Taking the textural descriptions developed during transcendental-phenomenological reduction, I started by varying the structural meanings of the textural meanings in order to identify the underlying themes or contexts that trigger the emergence, thoughts and feelings for the phenomenon.

This resulted in a detailed write-up of the experience and the analysis of the experience for each theme. To ensure full visibility to experiences outlined in each theme, I refrained from aligning the themes to the research question until after the

detailed analysis and write-up of each theme. In line with the intent of this process, further consolidation and clustering of the nodes/horizons occurred.

These themes were then aligned with each of the research questions and the problem statement. Given the richness of the interviews, there were themes that had to be categorized as beyond the scope of the research questions. Model diagrams were developed to visually review the relationship between the research questions, themes and nodes (horizons), leading to additional clustering and further informing the analysis.

Key themes from the data

Data analysis of the lived experiences of the 22 women of color addressed the three research questions, and provided a recommendation for social change within the culture of IT organizations. It also revealed two key themes, which will be reviewed in Chapter 5:

- Theme 1: Giving a voice to the invisible.

"I call myself the unicorn because I'm a black female in IT. So we don't exist. And almost every company that I have been to, have been [a] handful" (Participant AA013). This group is underrepresented in the workforce and in the literature – where their needs are ignored or assumed to be similar to that of White women. This research exposes the differences in recruiting, and retaining these IT women of color.

- Theme 2: It's more than numbers – it's whom you keep.

"We haven't been doing a good job in the retention stage. I think we've lost a lot of really good people that I didn't want to see going out the door … It's just people I knew were really good, that looked a lot more like me than the ones that stayed" (Participant

H001). The research addresses ways to drive social change by shifting the organizational focus from satisfying diversity hiring targets to programs that address the institutional bias and micro-inequities impeding an active pipeline of IT women of color.

Evidence of Trustworthiness

In phenomenological research, the validity is measured by the ability of the researcher to persuade readers about the accuracy of the findings Polkinghome (1989). The researcher must demonstrate that the transformation from raw data into informed, meaningful expressions is valid. There must also be an appropriate synthesis of this informed meaning into a general structural description. The process described in the data analysis section provides the transformation of the 22 interview transcripts into the answers for the three research questions. The final section in this chapter (Results) and the Interpretation of Findings in Chapter 5 will provide the details referenced in the data analysis section.

This section will address the five issues listed by Polkinghorne (1989) to ensure validity: interviewer influence on participant description, transcription accuracy, bias in transcription analysis, traceability between general structural descriptions and specific accounts of the experience, and generalizability of the structural description to other situations.

To address the interviewer influence on participant description of their experience, I completed a process of self-reflection in order to bracket any presuppositions or assumptions that could influence my ability to objectively listen to the participants account during the interview. The interview was conducted in the manner

described in the Methodology chapter. During the interview, I managed any verbal or non-verbal responses that could be viewed as interpreting or providing theoretical explanations of the experience being described. The accuracy of the transcription of the audio content to written form was maintained as described in the methodology chapter.

To address the final three areas (bias in transcription analysis, traceability and generalizability), I used the process described in the data analysis section of this chapter, including bracketing before the starting the analysis in order to identify and address biases and assumptions related to the interpretation of the data, and remove them from the context of the study. By using NVivo software, I had the tools to classify, sort and arrange information, including the coding of themes and visually exploring connections between themes. This provided traceability between the transcript, the structural themes identified, and the final conclusions documented.

Triangulation was used to compare multiple data sources in order to confirm the validity of the research findings (Leedy & Ormrod, 2005). All of the women had a LinkedIn profile with information on the work history, and some demographic data. I used this data to validate the data provided in the demographic questionnaire and relevant sections of the verbal interview. In addition, I documented impressions, observations, additional remarks shared by participants to aid in the analysis of the interview transcript and the development of the report on the findings. Member checking was conducted by allowing each the participants to confirm the information collected in the interview. The emerging themes were also checked against the transcripts to ensure that the findings were aligned with the information collected.

Transferability was established through the use of thick description and participant variation. Thick description was used during the write-up of the findings in the results section, and supported through the use of the features of NVivo to link the findings to the transcript content. Participant variation was built-in to the selection procedures and the nature of the relatively small number of women who qualify for this study. The sample contained women from various American companies, and was not restricted to the same company, sector, ethnic group or geographic location. The NVivo software was also used to provide traceability between the research questions, key themes and the ethnic groups.

Results

This section will review the responses to the three research questions.

Research question 1

How do women of color in IT leadership roles perceive their journey to obtaining and sustaining their position?

In the words of participant E001 “I think most of us end up having the career that we're just somehow meant to do based on the circumstances in our life, and the people we meet”. There are four factors that contributed to the leadership journey for these women (a) their definition of success, (b) their training, (c) their motivation for making IT a career, and (d) the barriers to their success.

Definition of success. Women of color are clear about their definition of personal. There were three top components in their definition for personal success, (a) setting and meeting personal goals, (b) happiness, and (c) making a difference in the lives

of others. This is reflected in their approach to setting goals at work, and their commitment to mentoring others. Participant AS003 phrased it this way:

> When you leave this world, basically I want to be able to say there is something that I made that made this place a better place. It could be in a small way, in some small context, but it's still something that I'm very particular about doing

The top three components in their definition of professional success are (a) delivering results successfully, (b) loving what they do, and (c) receiving recognition through compensation. Participant H001 stated

> one leader a long time ago in my career told me one thing: "If you love what you do, you'll never work a day in your life." I've always taken that to heart. If I'm not liking what I'm doing, and I'm not loving what I'm doing, then it isn't what I'm meant to be doing. I don't feel successful. I won't be successful because it's a struggle

These definitions of personal and professional success inform those factors important to the retention of women in IT. This will be discussed in theme 2 in chapter 5.

Training: technical vs. nontechnical. The participants came from technical and nontechnical educational backgrounds. Of interest is the fact that 43% of the participants have a nontechnical background (as represented by their degree) versus technical background. For those participants who started with educational qualifications outside of IT or technology, their undergraduate degrees were as diverse as History, English Literature, Accounting, Economics, Business Management, Psychology and Mathematics.

Three of the participants entered IT through programs that encouraged an interest in technology in high school. Participant AA001 says of her experience in high school "I attended a program when I was in high school that was targeted towards minorities going into engineering or technical field". This has implications to importance of STEM programs in high schools, and is discussed in the recommendations to organizations in chapter five.

The high percentage of women without a technical degree who have become successful leaders in a highly technical field is significant. This has implications to recruiting women for IT, and is discussed in the analysis in chapter five.

Motivation for IT career choice. The top reason participants gave for selecting IT as a career were its career and earning potential. Another important motivator was the ability to work on the business side of technology. Participant H002 spoke about the opportunity to work on the business side of technology:

> the skills that I have that make it a lot easier to collaborate with businesses that I can explain to them how we got to the point that we are, what we need to do to move forward, where their gaps are, which a lot of technical people don't have the ability to convey in a way that can be well received

Barriers to success. Three barriers to success were reported by all ethnic groups (a) a hostile work environment, (b) ethnic or gender stereotyping, and (c) unsupportive bosses or supervisors.

Hostile work environment. Consistent with the industry reports on barriers faced by women in IT (Hewlett et al., 2008, 2014), this was overwhelmingly the top issue faced

in their career, with 21 participants reporting this issue. They reported that the core features of this environment were:

- *Tokenism*, which is isolation, visibility/invisibility of being the only one and representative of their ethnicity.
- Lack of air cover, which is the second chance or additional support provided by senior executives and sponsors to their protégé when projects go wrong or are at risk.
- Lack of political support, which is the help, or support to navigate the organizational culture.

White women have an advantage based on their ethnic similarities with their White bosses or peers. That is they can be viewed as equivalent to the daughter, sister, etc. of the boss or peer, and in some cases they are viewed through that lens. As a result, they are given that air cover (or that second chance) that is not provided to the woman of color. Participant AA005 speaks about not receiving the air cover that was granted to others (in this case a White woman):

> there was another white woman on the team, in some cases when she made a mistake and an error, our leader ... treated her more like ... she was his daughter, rather. Yes, I definitely think they have more chances. I think when they make mistakes they'll find other places for them to land. With us, I think, once that perception is negative, then you're basically fighting for your life. It's very difficult to change that perception, so I definitely think they have a lot more latitude and leeway

Participants reported experiencing tokenism or isolation, and working in environments without political support, and where people development was not valued. Participant H001 speaks of the isolation:

> In this particular environment, we have very few women of color in leadership roles. I am typically the only person of color at the table in a position of authority. It's challenging for me, because I feel like I don't want to have the separation.

They reported that lack of knowledge of the politics that govern the organization and its culture could impact the progression of their career of a woman of color. Participant AS003:

> … also political savviness, working the corporate politics and who you network with. Those things all matter. In the early days of my career, I used to think that if you do a phenomenal job, you're just going to get these things; they're going to come and give it to you. It doesn't, and that's a rude awakening, the same thing. To me, it's more of you have to-- I felt like I had to prove ten times more, I had to deliver ten times more than somebody who was playing these politics.

An additional trend that emerged from the data was the varying reports of exclusion from the men-only networks, and the additional barrier faced by women of color to be accepted. It is impossible to be fully accepted; one may only gain partial acceptance or be invited to certain activities. Participant AA001 states, “Being included in the inner circle, being included in one-off discussions, being consulted because people value your opinions. I think as a woman of color, you're least likely to be in that inner circle”.

An interesting parallel to the discussion of a hostile environment, are the comments by a few women who felt excluded when men did not feel comfortable to act like men around them and apologized for cursing in their presence. It raised the question of whether there could be a correlation between ignoring a sexualized environment and the ability to be treated as equals by men. AA013 spoke about her efforts to get into the boys club by understanding sports, but also stated

> all these things - tools - that I thought I had to adapt in order to fit in into the good old boys club. And in some cases, yeah, it helps you. But in other cases, it doesn't. Because they still treat you like the "Lady." So they can't say the F word in front of you, or they can't say the bad words or have the raunchy conversations in front of you. So you're always excused from the conversation for one reason or the next. That's just a simple example. But there are other examples where as much as you try, you're still excluded.

Racial and gender stereotyping. Seventeen of the participants reported that they faced additional barriers and stereotyping based on ethnicity or gender. Whether it was not being taken seriously, or not considered as capable as their White peer, the assumption that they are not technical, or that they cannot understand technology because of their ethnicity or gender, or the fact that they are not aligned with the stereotypic expectations and assumptions of others. Of interest, is that all ethnic groups identified experiencing gender stereotyping rather than ethnic stereotyping. The implications of this finding and its relationship to the male-dominated IT environment are discussed in Chapter 5.

Participant AS004 discussed this experience:

> But I think the fact that you are a woman will stick with you because the higher you want to go, that's when people say, "Oh she's a woman. You think she can manage this much of stress? And she has kids. She has four kids at home, do you think she can balance? How is she able to work effectively?" Those are the common-- I think the gender sticks with you for longer

Women reported the backlash and labels given to them when they are assertive, that is when they speak up, are not intimidated by others, provide their opinion, take the leadership role, pushback, are direct, or are just vocal. While this is celebrated in men, it is labeled and negatively perceived for women. As AA001 stated, “Having a strong personality sometimes [chuckles] ends up with you in that situation because you know your business, you know how to articulate that”.

However participant E002 felt that the backlash was restricted to IT and that her business partners were more receptive to her style “I almost feel like sometimes the IT executives perhaps don't know what to do with me, because I am as assertive and as challenging as they are, and they're almost not expecting it from a woman”. Black women still bear the additional burden of being labeled as an angry black woman when they are assertive. In the words of participant AA007 “I think that if you're reasonably intelligent, or let's say you're extremely intelligent and you're a black woman, and you don't tolerate bull - you're scary”.

Women who remain in technical roles reported an additional gender-based backlash from men, particularly the assumption that if they adopt a less feminine style,

that they are lesbians. On the other hand, there were women in the participant pool that believed that those who were more technical or who are attracted to the technical aspect of IT, needed to would appear to be more masculine in appearance and style in order to succeed in that male dominated arena. However, the participant pool included women who did not adopt a masculine style but were very technical. Therefore the participant pool reflected the wide spectrum of expressions of gender by women in IT.

Of interest, is that two women explicitly stated that they did not experience gender or ethnic stereotyping in their career. This could be due to their coping style or other factors that were not discussed in the interview.

Unsupportive bosses or supervisors. As participant H001 states

> The most difficult challenges in my career have been working for someone that doesn't appreciate the work you do, and doesn't value what you do, and pretty much doesn't even give you the time and space to even find out who you are.

This was the third highest barrier to success, and was reported by 16 women. This barrier was experienced as the boss:

- Demonstrating discomfort with spending time with them Participant AA007: …and they spend time with people that they're most comfortable with. And if they're not comfortable spending time with me, you're not going to come to the territory
- Questioning their credibility or not valuing their skills and styles. Participant AA009:

> My credibility is on the line at all times and I feel like sometimes, as a woman and an African American … I had that one manager who I started reporting to, and he kept looking at the other guy like, "Is what she saying right?" I had to get him to that point where he wasn't turning his head anymore

- Not awarding them career opportunities needed for visibility or promotion. Participant E002 “I think it's definitely a longer transition of getting promoted. I certainly feel that I have accomplished - if I had to compare to some of my counterparts – more”.
- Not providing clear feedback.

Research question 2

What are the strategies and skill sets that these women of color leaders believe necessary to achieve success in IT organizations? What leadership skills and styles do these women of color IT leaders believe contributed to their success within the organization?

The participants have established specific strategies for success, and employed leadership styles that contributed to building and managing high performing teams. This four-part discussion will review their personality traits, their leadership styles, their top success strategies and close with a section on building and managing high performing teams.

The role of personality or outlook on life. The top personality traits identified in these successful women were:

- Dependability, loyalty, wisdom and forthrightness.
- Driven, determined and confident.
- Being fun and optimistic.
- Being caring, compassionate, and helping others.

They describe themselves as driven, “Type A” personalities: overachievers, hardworking, no-nonsense and results focused. These characteristics also appear in the participants’ success strategies described in the following section. Participant AA001 states, “I think people tend to describe me as very focused and kind of that same thing of no-nonsense, get it done person”. Their friends know that they are dependable and can be counted on. “I think people see me more as a problem solver and a go-to person to help them clean things up” (participant H002).

They are optimistically pragmatic, always seeing the best in the situation but not shying away from facing and stating the unvarnished truth. With a strong internal compass, integrity and honesty is a value they expect from their team and what they value in themselves.

There is a tendency to take charge, which can also be seen as controlling. Participant AS003 states, “Once I set my mind to it, I get focused and get it done. I would say that's pretty much my style, whether it's here or it's at home”. They are self-confident and have a strong sense of self-worth. Participant AA005 said that she would be described as “fearless. I'm not afraid to challenge management”. This is expressed in a work style is not intimidated by a persons’ level or expertise. They will challenge those in authority, a style that may make others (especially White men) uncomfortable. This take-

charge attitude, strong self-worth and lack of intimidation is incorporated in their leadership styles and discussed further in Chapter 5.

The participants described their personality as caring and compassionate with a desire to help and support others. In their friendships they help others by empowering them, and providing advice and support. Participant E001 describes herself as "[someone] that has a very strong, deep listening skills that always looks at empowering and helping people". They are loyal and supportive of their friends and family, to those that they have let into their circle. Participant E004: "I'm a rough tough cream-puff. I do have a soft side, but I tend to project a much tougher exterior".

In-spite of having a driven and focused personality and being described as focused and *Type A*, half of the participants spoke about being described as fun or liking to have fun. Participant AS002 was described as "very effusive and positive". This is another trait that they bring into their leadership style, with many prioritizing this aspect as an important factor in the teams that they lead. This personality trait also supports their ability to manage the stress that they face in their roles. They have the ability to laugh at their situation, to have fun with friends, and to decompress. They tend to be optimistic in their approach to life and situations, having a *glass half full* mentality. This is a coping strategy that also helps them navigate through difficult situations. Participant AA005:

> She would say that I'm funny, that I laugh about everything, which is true. Generally, when we talk, because some of the situations can be difficult that we face, and because we're each other's support system, we tend to look at things with humor

Strategies for success. The top success strategies employed by the participants were confidence, determination, and the support of friends, families or faith. These success strategies are related to the overall personality traits of these women.

Confidence. Over 50% of the women referenced this strategy. The participants are extremely confident about the skills they bring to the table, the value of that skill in their current environment, and the marketability of that skill outside of their current environment. In the words of AA010:

> That was my motto - don't quit. If I do, I can get a job. So it was also that belief in myself that I've always been very marketable. I'm a trained salesperson, who just happen to be in tech. And sales was always very marketable.

They have learned not to let others intimidate them or abuse them. As E001 states:

> In my career, I had people reporting to me that had Master's degrees, that had PhDs, that had no degrees, and I saw a lot of different people with different backgrounds, and what I have found is that it's the person that makes the professional, nothing else. And it can be a combination of many things, and so I just don't get intimidated easily and I just move on

They invest in keeping up-to-date in their area of expertise and do not rely on past knowledge and experiences to be successful in their current role or environment.

Determination. Three ethnic groups (all except Asians) were deliberate in including this strategy in their toolkit. Of interest is that although Asians did describe this as a deliberate strategy, their self-described personality traits included being driven and

determined. It could be that this is such an ingrained part of their personality that they do not consciously recognize their use of this as a success strategy.

The participants have an almost single-minded determination to succeed, to achieve their goal. Participant AA007 described it as “part the reason that I've been able to persevere, is that I've never given myself the option of not doing it”. Verbatim quotes of "I do not quit" or "persevere" were found in the interviews of the majority of the participants. Participant H002 describes it in this way “my personality is kind of that of a pit-bull. So I find something and then I dig into it and I just fight and fight and fight and fight, until I get what I want”.

They are described as overachievers “I'm an overachiever, so that drives me. I also felt like—what’s the right word? I always felt like I had to be better than my counterparts” (participant AA009). In line with this attitude, they do not give themselves any options for failure or excuses (e.g. from ethnicity or gender). In the words of AA013

> I can play a lot of cards - I can play the race card, I can play the gender card. But to me, those are all excuses. My goal and bigger reward for me, is if I thrive in spite of all the stuff that's happening, all the negative stuff that's happening

Participants spoke about being *thick skinned* and taking a deliberate decision to turn a blind-eye to prejudice. As AA001 states “knowing that you're not always going to be treated fairly in every situation and being cognizant of that, but not let that stop you or derail you. Put it in perspective and move on to something better”. All acknowledge that they need to be assertive to succeed, and will adopt that behavior even if it means that

they will be labeled in a derogatory manner. In the words of E001 “I still believe that the cliché of ‘I have to be bitch to succeed’ is true, especially in the world of IT”.

In conclusion, their view of obstacles was that none of them were un-surmountable. As one participant (E004) describes

> You look at it as, ‘With these barriers and obstacles, how can I get around them?’ I think with that mindset–thinking of them as just like slight bumps in the road, as opposed to the complete roadblock that you can go no further

Support from family, friends, and faith. Black and Asian women specifically referenced using this strategy. However it could be assumed that this was also important to the Hispanic women, who discussed the importance of relationships in their personality traits, leadership style and building high performing teams. These women spoke about the need to have a support structure outside of work. They had a personal network of friends or people that they have surrounded themselves with that are *on their side*.

This network of friends or supporters, are available to talk through issues, combat the negativity in the workplace and provide the coping mechanisms needed to survive. In the words of participant AA003 “when you have good people around you - outside of the workplace - it really helps you deal with negativity of the workplace, because you're not just defined by that job”.

Family also played a key role in the support structure. “But my family is very supportive, very engaged and I know it makes a big difference. But I know everybody

doesn't have that, and so I don't take it for granted" (participant AA003). Those that were married spoke about the importance of the support from their spouse. Participant AS001:

> He is one of those personalities that he's like a rock. He doesn't change much in the years that he's lived. He's very consistent. He doesn't really question who he is and he's very comfortable with who he is. I think it's also a guy/girl thing, maybe. He's really-- it didn't happen overnight, because I had to get over it myself, but I think the fact that he was there supporting me and he would do little things like give me a card saying-- just randomly one day gave me card saying how much he loved me for who I am so I shouldn't change, so that helped a lot. I got over it

A few participants also mentioned the importance of their faith or spirituality in creating a bigger context for the issues they faced and providing a source for their resilience. Participant AA014:

> If I didn't truly believe that I was not out here by myself and that I was following a path that the Lord had planned for me, then I probably would have done something else. But it's that faith which makes you keep getting up every time you get knocked down

Leadership styles of successful women of color. Transformational leaders "inspire employees to go beyond the call of duty, foster creative solutions to problems, serve as mentors, create vision, and articulate plans for achieving this vision" (Vinkenburg, van Engen, Eagly, & Johannesen-Schmidt, 2011, p. 11). The participants used several phrases to describe their dominant leadership style, including macro-manager, coach, servant leader, collaborative, results focused, inspirational, and

inclusive. These are all components of a transformational leadership style. Their transformational leadership style is expressed in the manner that they built and managed high performing teams. This is discussed in the following section.

Women with this style described themselves as delegators, setting clear and high expectations for their team members, and allowing them to deliver. Participant E004: “I like to give people a chance to try things on their own and try it first. I feel like you need that experience”. They believe in creating an enjoyable working environment for the team, and ensuring the team gets credit for the work. In the words of participant AA003:

> I think my coach probably became a stronger leadership position for me - which was really seeing people's potential and really getting them to step into the box versus stepping away from the box, and continuing to motivate them to do that. And when they did accomplish something, patting them on the back and say, "See, you can do it. But now, let's see what else you can do." It's that feeling of just having somebody to believe in you and pushing yourself to do better.

They are willing to be the supportive guide, versus the dictatorial leader. “My leadership role is, how can you help yourself? Therefore, how can I help you help yourself?” (participant E002). Many of the participants expected their team members to own their area, but they give space for their team members to provide suggestions, opinions and thoughts, and to have an opportunity to influence the outcome. “I love working with people. I don't compete to bring anybody down. I create an environment that's collaborative, that everybody succeeds” (participant H001).

The participants were focused on the outcome, setting expectations, and empowering the team to deliver. Participant AA011:

> I'm an empowering type leader I would rather teach you what I know then give you a safe place to fail so that you can build your strength and then put you in places and spaces where you can shine. So that when the opportunity arises to you that promotes you or congratulate you or whatever, I'd have other people, other than myself to do that. So, I'm really more empowered that way

Of interest is one Asian participant who reported a dominant style that had components of a transactional leadership style, that is an authoritative, hands-on, management by objectives style. This could be related to her experience in starting-up a business, resulting in the need to rely on a transactional type of leadership style.

Many of the participants admitted that they also had a secondary, hands-on, micromanager style that emerged when required by the leadership situation or team member. In the words of participant E004:

> I do know I have tendencies to micromanage a little bit. It's not because I don't want to give away control. I think it's more because, initially, you just want to help prevent people from making mistakes

Delivering results through high performing teams. As successful leaders, these participants recognized the critical role played by their teams. This study revealed three characteristics contributing to team success: (a) expecting their team to have a work ethic that is committed to delivering results, (b) supporting the success of their

team members, and (c) effectively managing upwards (managing their boss or supervisor).

Work ethic–a commitment to delivering results. This characteristic was valued by 18 participants and was reported by all. One participant described this as "my leadership style has been very much be your word, very much get shit done" (participant AS002). They expected the team member to take ownership and be as committed to the successful outcome as they are. Participant AA014 states:

> I only tend to retain people who really showed me that they could do the job, loved doing the job, and wanted to do more. That kind of thing. If they weren't giving me a 110%, then they weren't-- I didn't want them around me

The women knew that the bar had been set high for them to succeed, and as a result the expectations of their team was also high. "I'd say I'm firm. I am firm. I set high standards. And I may set high standards for my team, I set higher standards for me" (participant AA013). They are very clear in communicating their expectations and are not tolerant of those who are not committed to delivering. Participant AS002 states:

> I'm very high energy, positive and more than anything, except when there are mistakes. I don't tolerate mistakes on my part or other peoples' part where it's obvious that really they could care less or they didn't have attention to detail. Those kind of things, I get very impatient

Team members who are also high performers excel. Participant AA008 states:

> I have found and I have gotten this feedback that people that are high performers, they love working for me because they know what to expect. It is clear and all of

> that, but people that are probably not high performers that want to coast, they struggle

As part of this work ethic, there is a high expectation of excellence in expertise, intellectual curiosity, and innovation. Participant E004 states “I do value people being able to do that: problem solving, critical thinking”, and participant AA011 “The people who report to me need to be intellectually curious”. IT is a field with constant change and growth, and the participants expect the team members to continue to invest on building their expertise and not rest on what they already know. This is in line with the changing nature of IT.

Communication skills that manage expectations are also highly valued, in addition to the expectation of a high work ethic. A high value was placed on the ability of team members to partner with, collaborate and work with others. In the words of participant E002:

> Communication is super important to me, only because I don't know what I don't know, and I don't read between the lines. Or I should say, I choose not to read between the lines. All I need to understand is, if there is an open communication, what do you need from me, and what do I need from you?

Black women also highly rated their expectations that the team member will be honest and above board in their actions. Participant AA003:

> …integrity. I like people that are truthful. I like honesty. I like people that have a great work ethic. I like people that are respectful of others. I like people that like to have fun and smile and have joy in what they do at work. But I particularly like

> people with integrity. I had a difficult time working with people that lack integrity.

Participant AA013 “And integrity is a big, big, big one for me. If I can't trust you, it's very hard to me to be in that team-setting with you and be successful. So integrity and attitude are my big two”. This might suggest that their personality traits of being forthright and upfront influence their preference to work with others who have similar traits.

The women do not value team members who try and leverage their ethnicity or gender to get ahead, those that assume that similarities of ethnicity or gender should grant them a position of privilege with the leader. This would be aligned to their perspective of ignoring bias in their own career progression, and in their definition of success.

Participant A014:

> What I didn't have tolerance for, were people who were trying to use their relationship with me to get over and not do the work. Just because I'm a black person, give me a job because I'm black. You should give me a job because you're black." And that kind of stuff. Then you give them the job, and they don't work. Then you have to fire them. I have no tolerance for that

Supporting the success of the team members. This key characteristic was mentioned by 15 of the participants, from all ethnic groups. Participants believed that it is the one of the leaders’ responsibilities to fight for her team, supporting them with the resources they need to be successful, removing roadblocks, and to helping them get ahead when they have earned it. Participant AA003:

> I thought any leader should sponsor their people and be supportive of their people. The concept is lost on me of leaders that don't try to fight for their team or to help people get ahead that they feel have earned it. I think that is the responsibility of the leader. I think a leader is actually more of servant than people that are working for him when it comes down to it.

Spending time on people development was also important. Participant AA008:

> I have had people come back to me, or have people join my team, and they have said, "Oh wow, I heard that if I get on your team, you're going to really invest in me as a person," and I really feel strongly for that. Because I feel like if people, if they enjoy working for me and they know that I am for them, they're going to do their very best, and we're both going to benefit from it

Most participants stressed the importance of having the team members have ownership and feel empowered.

There was a deliberate approach to building relationships with their team members, including getting to know about them personally and professionally, and building a level of rapport, trust and comfort. Participant AS004:

> But if we don't have the trust, I think nothing works out in the project. So I really try and spend a lot of time and effort in the beginning - when a new team is here - to be very friendly with them. I'm friendly, but I'm still firm when it comes to the tasks and duties. And a two-way communication, make them really comfortable and win their trust

They cited having good working relationships that extended beyond the immediate assignment, and were still in place years after the original assignment. Participant H001 states:

> You burn your bridges, you do one thing, and nobody ever wants to work with you again. That's not my style. I'd rather keep the relationship and maybe not get everything exactly perfect, but the relationship and how I get there is extremely important

This ability to build and maintain relationship is an area that surfaced several times during the interviews and analysis, as a strategy (a) to overcome adversity or barriers to success, (b) to manage upwards, (c) to work with business partners in a unique and effective manner, and (d) to chart a path for career success. Participants also gave direct feedback to their team, and were open to receiving feedback from their team members.

In support of the team success, the participants provided their team members with visibility, opportunities for advancement, and development of leadership skills. Participant AA011 states

> I'm an empowering type leader I would rather teach you what I know then give you a safe place to fail so that you can build your strength and then put you in places and spaces where you can shine. So that when the opportunity arises to you that promotes you or congratulate you or whatever, I'd have other people, other than myself to do that.

Team members were provided the opportunity to develop through stretch assignments or roles, training, etc. For some participants, that included coaching team

members, particularly the technically focused team members, on critical soft skills. Participant E002 states:

> …my expectation is that you're bringing the hard skills with you. Otherwise, you wouldn't have got into that position. So, that's a given. And we proved that you have the hard skills, but when it comes to the soft skills, I like to really partner with them and get them to a place that I then feel comfortable with the soft skill that basically matches their hard skills

A few of the participants (Black women and *Other Females*), commented on the importance of grooming their replacement–ensuring that someone else can step into their role when they are not in the office, and that their succession planning is in place. “But I am of the mindset that if I can't leave and someone steps into my role, and at least have a general idea of what I do, that to me, that's not a good management style” (participant AA012).

Effectively managing upwards. The women also recognized the importance of successfully managing upwards–that is managing their boss. Asians used a combination of approaches and had no dominant style. Black and Hispanic women managed their boss by setting clear expectations. The need for Black women to set clear expectations could be related to the earlier discussion on the importance they place on integrity and trust in managing their teams. Aligning goals and expectations reduces ambiguity, and allows them to establish a foundation of trustworthiness. This is discussed in Chapter 5. Participant AA005 describes setting clear expectations in this way:

> I know and have a good handle on what the expectations are, and I make sure that I discuss those on a regular basis, and I make sure that management understands what direction that I'm going in, and they understand what my plan and my strategies are. That's real important. They say that I'm really good about that.

In line with setting clear expectations, these women established a reputation of delivering results with confidence and integrity. Participant AA012:

> but my style really is to make sure that who I'm reporting to is very aware of the things that I'm working on, making sure that I am living up to the same expectations that I believe my staff should live up to. Constant communication. So my style really is to be that manager who really is self-sustaining, but who makes sure that the person that I report to is up-to-date on what I'm typically working on

Other Females managed their relationship with their boss by building the relationship. Those participants who prioritized building the relationship spoke about the importance of this activity, even though it may be difficult to do so across gender and ethnic lines. Participant E003:

> The relationship that I have now, I go often and I have full control over whatever I'm responsible for. I actually have initiated to meet on a certain level of frequency, but on a regular basis… It's a pretty good dynamic, because it's the right level of autonomy. Yet she's still very accessible. And I reach out to her when I need help. Then if I don't, then I don't. But she's definitely very supportive and fosters good working habits, and very understanding

Participants also ensured that they are communicating in a style and frequency that is aligned to their leaders. Participant AS003:

> My style is such a way that when they get something from me, they know it's not something that I send every day. They pay attention, if I go say, "I need to talk to you," they know it's something that they need to respond to. I try to make it so that it's a relevant communication. It gives them what they need to know at the right moment so that they're not blindsided. There's always going to be something happening, but for the most part, that's just my style of working with my senior management.

Research question 3

What recommendations would they provide to aspiring women of color in IT organizations?

The participants recommended five strategies that aspiring IT women of color leaders could employ to be successful:

- Know their strengths and be authentic.
- Ignore bias – be excellent.
- Have confidence and courage.
- Build relationships.
- Take ownership of their career.

Know their strengths and be authentic. This strategy was recommended by all of the women. They recommended knowing what you excel in, your unique value and

strengths, and continuing to invest in yourself. It was important to keep ones' core values and integrity. Participant AA001:

> I would say know yourself, know what you're comfortable with, know your style, deal with people in a way that you would want to be dealt with, be able to assess situations, and figure out how best you can operate in that environment. If there are ever cases where you feel that you can't operate as yourself that you can't be true to yourself, and feel good about yourself in what you're doing that you need to find a different place to do what you do.

This does not contradict the earlier data on being adaptable, or changing to better accommodate the organizational culture or expectations, but complements it by stressing the importance of incorporating change while being true to one's core. Hispanics recommended focusing on developing and using soft skills such as negotiation, leading through influence, collaboration, etc. Participant H002:

> You know it is what it is and I think that the skills that I have that make it a lot easier to collaborate with businesses that I can explain to them how we got to the point that we are, what we need to do to move forward, where their gaps are, which a lot of technical people don't have the ability to convey in a way that can be well received.

Due to the constantly changing nature of IT, participants recommended that women should be deliberate in updating their skills in order to remain competitive.

Ignore bias. These women refuse to be defined by their ethnicity or gender, and advise other women of color to not get caught up with the definitions and stereotypes that others may have of them but to focus on their own ability. Participant H001:

> It's how you react or don't react to these things that's going to make the difference. Sometimes people are just ignorant, and that's just the way it is. You've got to know that, and get some thick skin, and just keep going where you have to go. Those people usually are left behind pretty quickly

Participant AA001 "…know that we may encounter some difficulties that others don't, and just be open to the fact that when it does occur that you can rise above it".

Building on the reactions that can be received in the workplace because of ethnicity participant E004 encourages women to focus on being a leader:

> Part of me wants to say, "Don't think of yourself as a woman in leadership. Just think of yourself as a person in leadership." Because then you can tend to fall in the trap, "I'm a woman, and I'm a woman this and I'm a woman that is a good person and you're there to do a job." If you can think that way, then that's what you'll project. If you project that, hopefully other people would see it the same way

Successful women address their thought processes. Participant AS003 states:

> I would say for someone who's Asian... there's always stereotypes, but not get so hung up on that.... when I walk into a room, I don't think to myself as, "They're looking at me as an Indian or Asian." I don't even remember that; I don't even

> think about it. I think that's also important, that you don't get so caught up in that becoming your signature thing, professionally.

In addition, the participants recommend that, in light of the additional opposition that is faced by women and ethnic minorities, women of color need to be above average. Participant AS002:

> And so the message for me to women of color is, you have to work harder to get to the goal, more than other people. You have to be really, really good at what you do. You have to be better than others. You have to be above average.

A few participants recommended responding to bias by setting high standards and delivering above expectations. Participant H002:

> I define myself from my strengths and my ambitions. And I think that in my opinion, that is the position you should be coming form. I never subscribe to the color card of, "Okay, it's either because I'm this or hey, because your that. You should give me this." I've always thought, "Well, let me work as hard as I can. And be seen as an asset, so that I can move forward." And I really think that's still the way to go.

Participants made several recommendations on professionalism, image and managing one's sexuality for women and women of color. In contrast to the discussion of valuing one's unique strengths, these women warn that flamboyancy and strong ethnic cues can distract their peers and clients from focusing on their ability. An example was given where her peer (a White male manager), refused to allow one of his team members

to have a client-facing role because the team members' hair was in French braids. Participant E004 states:

> you also have to be able to present yourself in a way that is not distracting from what you are trying to do. Sometimes you do have to treat that vanilla version of yourself. By vanilla, I mean plain

The burden is on the woman to always maintain a corporate or professional image. Although White women and men may have the opportunity to be less formal, this is not an option for the woman of color. In light of other feedback and recommendations to be more flexible and inclusive with their peers, this advice demonstrates the *tightrope* or *balancing act* that women of color need to constantly maintain. Participant AA005

> I would tell them that you have to be very careful about how you're being perceived in an organization. Make sure that you have your best game face on, if you will. Because that perception factor can hurt you in a lot of ways. And oftentimes, because it is perception, it can be wrong. One of the pieces of advice that I would give is always make sure you're perceived in the highest light. Make sure that when you speak, you have something valuable to say. I would say definitely watch how you dress, how you carry yourself in general. I've seen women over the years that - and I mentioned the dress factor - who have dressed in a more provocative fashion. I would say, I personally don't think that's the best way to go. I think maybe it'll carry you so far, but at the end of the day, there's expectations, and sometimes the way you dress and carry yourself can be perceived in a negative fashion

Have confidence and courage. Seventeen women made this recommendation, having an unshakeable self-confidence, even if others do not share it. It is of interest that this has been reported in industry reports and popular leadership books, particularly in terms of engagement in meetings and in communication style. The importance to peer reviewed research is addressed in Chapter 5. They emphasized the importance of self-confidence, and for aspiring women to be courageous and fearless. As participant AA005 states men and women generally have different communication styles and that influences how others perceive them:

> I'd say, like I mentioned about myself being fearless, not being afraid to speak up. I think sometimes, as women we tend to hold back, whereas men feel more comfortable expressing themselves, good or bad, and I think that we tend to be--we hold back a lot.

Participant AA003 builds upon this by discussing the confidence that women can gain from their skills and expertise:

> it's also your confidence in how you look at yourself and your ability to trust what you're saying. And then trust how you're seeing it and to trust that you deserve to be heard. So for me, if you feel like you have leadership quality, you have a leadership quality. Because to be a leader, you have to have people willing to follow you. And as you see more and more people willing to follow you, you hone those skills

Women also spoke about the importance of retaining this confidence in the face of opposition, or in spite of not receiving support from others. Participant AS002:

> The thing is, the key for a woman is to believe in herself because that's the natural attitude when a woman tries to achieve something that's out of the ordinary. The view the world may have is, "That's ridiculous. Why are you doing this?" And so if she believes in herself, then she can do it regardless. That's the first thing.

They warn women against placing limits on themselves or accepting the limitations that other place on them.

Perseverance and resilience is strongly correlated to this perspective of not limiting one's potential. Participant E002 "I would just say be confident, and if you're not, pretend you are and keep moving". Participant E004 addressed the importance of not being intimidated by others:

> … don't be intimidated if you see other people, or they're speaking and sounds it like they're so knowledgeable, and that whatever you say will pale in comparison. Recognize that you have your own talents, your own skill set and exercise that.

Although there may be concerns about being viewed as aggressive women, many of these participants still advise women of color to be assertive. The participants encourage women to speak up. In the words of AA001:

> You speak up. You let people know what you want. You go talk to folks and say, "This is what I'd like to do." Find out if they're willing or able to help you with it and really being your own advocate

Participants also encourage women to be prepared to fight for what is important to them, to force men to listen. Participant H002 states:

> And then from a personality perspective, you have to be a woman that comes to the table ready to fight, so that the men are afraid of you enough to listen [laughter].

Some spoke about having to make changes in their personal style in order to take on this characteristic. Participant AA013 speaks about her transformation when she left corporate to be an entrepreneur:

> From a business sense, I think I was more introverted and a more shy type when it came to business. But I had to put that aside and just become a very outgoing, aggressive, salesy type, entrepreneur type, and ran a company - my own company

This may appear to contradict earlier advice on being authentic. However their advice is to determine the extent to which changes to personal style, or internal and external characteristics may be necessary in order to achieve the desired leadership goals. In all cases they descried their transformation as premeditated and deliberate without sacrificing core values.

Build relationships. All ethnic groups recommended this. The women overwhelmingly spoke about the need to build relationships and network, not just with those of similar gender and ethnicity, but across the board. It was important to build relationships with ones' boss, peers and those below oneself in the organization. They recommend deliberately working to increase the level of comfort, of the boss, peers, etc., with the aspiring woman of color. Participant AA008:

> And I say, "You got to work up. You got to work sideways. You got to invest in those that are below you, so don't forget your peers." One of the things I say,

> "When you come in, you need to be taking them to lunch periodically, setting up, 'Well, here's what I'm thinking about'." Getting their input, even if you feel like you don't need it. But getting your supervisor and your peers invested in your success. Because when you do that, they'll speak you up, and so will your supervisors. That was one of the last things that I learned that, it can't just all be about me being successful and not looking towards my peers and ensuring that if I can contribute to their success, [I] can

Participant H001 endorsed the importance of networking relationship in a global economy:

> Networking is extremely important because there's always somebody that knows how to do something better than you, or that has something for you. It's extremely important to keep that connection open, especially in a global organization. You need to be able to have feet on the ground. You need to be able to have perspectives that are different from your perspectives. Having a global network has been extremely valuable.

In support of their earlier position about ignoring ethnic and gender biases, they recommended not limiting ones' network to those who share ethnic or gender similarities. Participant E004:

> A lot of times people of color, when they are in business, feel like we need to band together, and that's limiting. Another piece of advice I would give is, your goal is to connect with many different people, not just people of your own background

One way to break ethnic or gender assumptions is through relationships. Purposeful relationships can provide the environment for exposure and combat assumptions based on ignorance. However women need to be prepared to be vulnerable. Participant AA009:

> I think it takes work for us as women and people of color - is building a personal relationship with people higher than you - your direct managers and others. If people don't know you it's easy for them to make decisions about you. Those decisions may not always be in your favor. So sometimes we have to let ourselves be a little bit more vulnerable

Some participants spoke about the importance of having personally supportive relationships. Participant AS002

> The second thing is, to surround yourself with people that believe in you as well, as far as possible. My mom said those things but counter to that was my husband who completely believed in me. So it's really important to surround yourself with people that believe in you because it's ultimately that type of nurturing environment that makes all the difference

This corresponds to their comments on how they personally overcame adversity though supportive family and friends, which was reviewed in the section on question 2.

Participants spoke about the importance of building professional relationships and identifying supporters. AA006: “One of my old mentors used [to call] that [a] ‘friendly’. Find the friendly folks, where you can go in and you can mess up and they're not going to persecute you”. The issue of having support at home, especially for women with children,

was raised by some participants. They have addressed the issue by creating a personal support network. Participant H002 states:

> and if you listen to women who are at CEO levels and have families, the most profound quote that I heard was that you've got to find a supportive husband who is willing to change diapers, wash dishes and feed children or you can't have that.

The correlation between supportive relationships, both professionally and personally, and success is discussed in Chapter 5.

Take ownership of their career. The participants strongly recommend that women need to take ownership of their career, including having sponsors, and being strategic in planning their career path. They spoke about being clear of ones' leadership goal, including developing a strategy to address the unique issues that will arise.

Participant AA009 discussed the thought process that is required:

> You need to work your career. And that means having some idea of what the next step is going to be for you. And the next step after that, at least. Then what is your plan to get there? Do you have the right connections? Do you really know the requirements of the job? Do you have people that are going to sponsor you and advocate for you to get into those roles? Do you have the visibility that you need, and if you don't why aren't you having that visibility? When special projects and assignments come up, are you one of the candidates that they look at? If you're not why aren't you? Does your manager know that you aspire to do these things?

An important skill that many women fail to exercise is that of negotiation. Participant E004 spoke about negotiation in terms of salary, but this extends to negotiation for projects, resources, etc.:

> Also, negotiate, negotiate your salary [laughter]. Oh, goodness. There's always room to negotiate and not to settle-- whenever you're taking a position, just think about what you want out of the deal and it doesn't always have to be monetary … So that's the other thing I would say. You have your game plan, always have that game plan. And also, know things are not going to go to plan [chuckles], and have your back-up plan [laughter].

Participants also addressed the issues that need to be considered when selecting a career path or strategy. Although demographic data on children was not collected, many of these women mentioned their children during the interviews. Participant AA005:

> Let me see if there's anything else I would say in terms of just women in general. I would say, when you're looking at your career, really map out things. Think about, if you want to have children at some point, how are you going to handle those aspects. If you're going to be out on maternity leave, or how are you going to manage some of the unique issues that women deal with. You need to have a strategy for that.

Black, Asian and Hispanic women also spoke about the importance of developing political savviness or *playing the game*. Participant AA007:

> And if that's what you're after, then you do have to play the game. I know that that's kind of clichéd, people say you have to play the game. And the game is different, it's different at every company.

They discussed the role of sponsors in helping women successfully navigating the politics of promotion and career development. Participant AS003

> To be successful, I would say I think you have to have a-- this is one of the things I learned in the last two years. You need a sponsor or you need a leader who is powerful or who has some clout, who is your champion. You need to do your part of delivering. You need to do your part of being value added to the organization, whether it's through the work you do or other things. But you also need that … when you get to that point where getting from a director to a vice president role, then it could become more of a-- there's a lot of moving parts, there's a lot of politics, there's a smaller number of slates. Because you're not in those conversations, who's speaking for you is going to be the critical thing.

Recommendations to organizations–expanding the pipeline

As successful leaders who are passionate about the success of other women of color, the participants provided advice to the organizations seeking to build or expand their pipeline of IT women leaders. They recommend:

- Actively address the biases and micro-inequities in organizational processes.
- Hold leaders accountable for diversity results.
- Develop men and women to lead diverse teams.

Actively address the biases and micro-inequities in organizational processes. All of the participants spoke about the environment that is required for the woman of color to thrive. They stressed the importance of reviewing the human resources processes Participant AA010:

> Just be very, very cognizant of that. Audit your everything - job descriptions, wanted ads, performance appraisals. Audit all of those for inflammatory language. Again, very subtle, but it's the subtle things that drive people away. You don't have to picket or march around with a big picket sign. It's really the subtleties that you have to be careful about

Participants also addressed the impact of a sexualized work environment. Participant AA011:

> … if there's a boys club mentality around there, making it a people club where it's not acceptable for you to talk about big girls, and big behinds, and all of what you saw last night in front of her and make her feel uncomfortable, or even talking to her about hers. As you would be thrown... if she talked to you about your package to you.

Women valued an environment that accepted soft skills e.g. confidence, influencing skills, etc. Participant E002:

> and to have a presence at a strategic round table of a company, we need to have more soft skills... look for those individuals who have the confidence, who have soft skills that either is in a mature level or has a great potential of maturity

It was important to the participants that they have supervisors and bosses that valued their skills and style, and provided them with opportunities for growth and visibility. They also recommended implementing supportive processes (e.g. processes for recruiting, retention, succession planning and promotion). Participant AA008:

> “I don't really need you to open the door, just point me to the door because if I get to the door I'm going to kick the door open. I just want a chance." Give women an opportunity to be able to show and demonstrate what they can deliver and don't limit them

Participant AA013:

> So even the situation that I'm in here, Five VPs got announced within a week of each other. Five VPs, and every last one was a male, and four of the five were white. You're trying to tell me that there's no woman and no woman of color that could have fit into those five jobs? And if so, then what are you doing wrong? And this is the only feedback that I gave to the diversity and inclusion group here. What are you doing wrong? So one of two things are happening: you're either not selecting - which I hope is not the case - or you're not preparing. And if I am not suitable for one of those five roles - me as a woman, me as a woman of color - I'm not suitable for one of those five roles, then you're not grooming me well. And I think that's where organizations can look. It's one thing to put me on a slate. It's one thing to say I have a number. But how am I making sure that I'm retaining that number, and how am I making sure that that number's being promoted through the ranks?

Participants spoke about the need to continue programs that support working families. Participant AA008:

> Have the flexibility ... so that a woman can have it all - where she can have a successful home life and a successful work life. That's going to be critical going forward because you don't want to make her have to choose between her family and her job, because most women will choose their family, it's a given. Don't force them into that choice

Hold leaders accountable for diversity results. The participants overwhelming spoke about the need for companies to go beyond talking about the need to have diversity in their organization and make real progress by making it a priority and holding people accountable for making the required changes. Participant AA010:

> It's making those executives accountable and making them want to. Because they're not going to do anything they don't want to do. They'll just kick the can and let the next guy do it. We really have to show them why it's so important for males to be advocates for women in tech

They highlighted the value of STEM programs and how companies can get involved in attracting girls, young women and ethnically diverse candidates. Participant AS001:

> I think for-profit companies can have a huge influence in promoting women or girls - and I think it starts with even kindergarten - promoting their interest in technology. ...I think we even more companies to be doing that because it's not

> enough and because we still have the traditional cues that I told you that girls get of being girly and not being nerdy in tech

Some participants also spoke about the importance of investing in STEM programs. Participant AA003:

> And I know the STEM programs, different programs are out there. We've tried so many times. I was part of a minority program when I was 14 that really helped to let me be aware of technology and computers. I think we just have to continue that

They also recommended looking outside of the technology field for women. In light of the data in this study where 43% of these successful women of color were from outside of the technology field, this represents an under-tapped market for organizations. Participant AA005:

> I think they need to come up with a greater appeal or a greater story of what the possibilities are, and then identify women early who have the aptitude. I think, a lot of cases and that it's the same people that you would find in other corporations or other industries

The importance of focusing on retention was also discussed. Participant AA009: "The other thing is that it's not a numbers game. So many companies get caught in that trap ... It's not how many you can bring in. It's how many you can keep". Building on this, participant H001 discussed the loss of talent she saw occurring in her organization:

> I think we've lost a lot of really good people that I didn't want to see going out the door. It's anecdotal. There's no data. It's just people I knew were really good, that looked a lot more like me than the ones that stayed [laughter].

Many participants spoke about the importance of retention on the reputation of the company and its impact on the internal and external reputation of the company or organization. Participant AS004:

> it is two things, one is you're building the pipeline and secondly you are also telling the outside world that you are giving importance to women, and that attracts more women to come into the organization. So it will be motivation to the existing people, and also you are encouraging new people, new talent to come into your organization

Develop men and women to lead diverse teams. Supervisors can be the defining point for women in an organization. As stated in the literature review, bad supervisors are one of the top reasons that women leave (Hewlett et al., 2008, 2014). Good supervisors can support diverse candidates in an otherwise difficult environment – providing feedback, air cover, and opportunities. As one participant stated (AS001):

> I think the very first thing that has helped me is having - how do I say this - having really supportive direct line managers - someone who will really stick up for me, at the same time someone who will point out my development opportunities, someone who really looks out for me, is honest with me - that's the kind of person that has-- whatever jobs I've been successful at, I feel like that's the kind of manager I've had.

Participant AS003: “The other critical piece is who your manager is, who your immediate supervisor is, what sort of a support system you have is so critical”. People managers (men and women) in IT need to be trained to be leaders that can effectively manage a diverse team. Participant AA010:

> And then train your supervisors, or those who are managing the women or the people of color. Make sure that they are not just a one time training either, but make sure that they are developed into that kinds of leaders that will attract and develop others coming behind them.

IT organizations need to develop a more inclusive definition of leadership that supports gender and ethnic diversity. Participant AA011: “I shouldn't have to be a certain personality type because I'm a woman. I shouldn't have to show up with a B-word on my back in order for you to hear me”. The participants warn companies that they need to value the diversity of their employees, versus trying to get the diverse candidate to be assimilated into their corporate culture and lose their identity. Participant H002 spoke about:

> I would challenge that corporation to define what exactly is it that you're looking for. Are you looking for people that are willing to work for the company who have a desire to build success within the company or are you only interested in maintaining your current model

Participants stress that diversity is not a *problem* with the ethnic minority person that needs to be *fixed*. Participant AA003:

> develop their men ... to stop trying to categorize women who are leaders in certain boxes, to expect them to be what they expect them to be before they can accept their leadership. Men don't have to go through that. There isn't any chasm of, "Well, if she doesn't say this nice and softly to me, then she's not that much of a lady. And then therefore, she's bossy." Guys don't go through any of that. ...Women on the other hand, have to get past the man's discomfort with her, before she can even start to talk about what her capacity is and what she can do. I think that just has to change. I think companies have to think about - it's not all the onus on the woman

Participant AA003 continues:

> I think that's why I'm sincere when I say there needs to be training of men in the corporate environment. Not just training of women... I think the training should be all the way around on leadership, period. Just because you're a certain gender does not make you a leader. And I've never seen training for men in leadership

The women stated that sponsors are needed to expose candidates to the opportunities that will build their career and give them visibility. The difficulty faced by women of color in getting access to sponsors needs to be addressed versus assuming that it will occur naturally. The participants recommended that companies build the case for sponsorship and actively assign mentors and sponsors to women.

The role of supporting women of color with mentors and sponsors was raised. Participant AA010 “We really have to show them why it's so important for males to be advocates for women in technology”. Participant AA007:

> I think that they have to assign a mentor to those people, and there are companies who do that now. They have to actively engage with you as your mentor...That mentor has to be somebody who is not afraid to say the hard stuff

Characteristics of an IT leader. Given the importance of supportive supervisors to the advancement of women of color in IT, the research uncovered the characteristics these women of color expect in a supportive boss. Companies can learn from these characteristics, and use them to develop leadership performance standards, and leadership development training. These characteristics are bosses or supervisors who:

- Value the unique skills/styles of the woman of color.
- Provide opportunities, visibility and air cover to the woman of color.
- Provide the clear feedback these women of color need to hear to be successful.
- Focus on their results not the external package of gender or ethnicity.

Value the unique skills/styles of the woman of color. This is related to the professional definition of success for these women of color. Being valued and rewarded for their skills was important to the retention of these women. Participant AA003 stated that in her current environment she is: “working with people that value what I bring. They are not intimidated by me”. The line manager can directly influence recruiting and retention. Participant AS001: “my direct line manager was amazing, and that's actually the reason - a big reason - why I took the job”.

Provide opportunities, visibility and air cover to the woman of color. This includes providing support when there are issues, breaking through barriers and opposition for their employee, providing support during succession planning, or in

granting opportunities that can provide career visibility. Participant AA008 states: “I don't really need you to open the door, just point me to the door because if I get to the door I'm going to kick the door open. I just want a chance".

Provide the clear feedback these women of color need to hear to be successful. The participants report that it was harder for women of color in IT to get direct feedback from their bosses–particularly White male bosses. Clear feedback provides the opportunity to correct issues that may be sabotaging one’s success. However, the White managers feel more comfortable providing that type of feedback to their White male or female subordinates, and hold back from being frank with ethnic minority employees. This could be due to their fear of the response they may receive, or just difficulty in engaging across ethnic and gender boundaries. Participant E003 continues:

> so they don't want to step on a landmine, they don't want to offend, they don't want to do things, but critique, give feedback. If you're upset about something, say, "What the hell were you thinking?" Because they'll be fine, they will survive

Focus on their results not the external package of gender or ethnicity. The women in this study operate from a perspective that ignores gender and ethnic bias, and seek bosses or supervisors who have the same perspective. As determined, results-focused personalities they excel in environments that are aligned with their personal and professional values. Participant AA003 described it this way:

> I think also it depends on that boss. I've had bosses that they just wanted somebody bright and they didn't care if you had one eye. If you got it done for them, they were happy with it.

Summary

This qualitative, phenomenological study used interview questions to explore the factors leading to the success of women of color leaders in IT and the organizational culture changes required to support the development or expansion of their leadership pipeline. The data analysis of the lived experiences of these 22 women addressed the three research questions and identified two key themes.

The two key themes were:

- *Theme 1: Giving a voice to the invisible.* "I call myself the unicorn because I'm a black female in IT. So we don't exist. And almost every company that I have been to, have been [a] handful" (Participant AA013). The assumption is that the low numbers of women of color in IT supports treating them like White women. This study shows that there are unique differences in recruiting and retaining these women of color, and that this extends to differences between ethnic groups.
- *Theme 2: It's more than numbers–it's whom you keep.* "We haven't been doing a good job in the retention stage. I think we've lost a lot of really good people that I didn't want to see going out the door… It's just people I knew were really good, that looked a lot more like me than the ones that stayed" (Participant H001). IT women of color leaders are confident, determined, and will take risks to get ahead, including leaving their current company or the IT field. To retain women organizations need to develop an environment that supports their success. This includes supportive bosses or supervisors,

removing barriers and micro-inequities inherent in recruiting, succession planning, promotion processes, and training male and female leaders to manage diverse teams. This study contributes to social change by providing insights on the organizational culture changes required to retain these women.

Responses to the interview questions described participants' methods for succeeding in their environment, and the consistency in their answers formed the basis for conclusive analysis of the similarities across ethnic groups, and the unique characteristics within ethnic groups. Chapter 5 presents the analysis of the results, conclusions, and implications for future research.

Chapter 5: Discussion

Introduction

The disproportionate number of men to women in IT jobs is documented in the census data and popular research. In an industry with a low unemployment rate, high starting salaries, and a projected 18% growth rate by the year 2022, IT jobs are ideal options for women and ethnic minorities seeking well paid careers (National Center for Women & Information Technology, 2014a). Women and ethnic minorities represent an untapped potential to satisfy this demand for trained resources (Ong et al., 2011). It is posited that female IT leaders are effective leaders, irrespective of their ethnic background. It is also posited that the discrepancy in the representation of women of color at the IT senior level is not based on their leadership qualifications, but could be related to artificial barriers (e.g. stereotypes).

The specific problems that this research addressed was the under-representation of women of color IT leaders in corporate America. The purpose of this phenomenological study was to investigate the experiences of women of color as senior IT executives in order to understand the success factors that have contributed to their ability to attain a senior position in IT. It addressed how select demographic, individual, and organizational level factors serve as predictors of women of color's presence as senior IT leaders in corporations.

This chapter discusses the relationship between the findings and the theoretical framework and connects the findings to the relevant literature. It provides an

interpretation of the findings, and emphasizes key emergent themes and their relationship to the research questions:

1. How do women of color in IT leadership roles perceive their journey to obtaining and sustaining their position?
2. What are the strategies and skill sets that these women of color leaders believe necessary to achieve success in IT organizations? What leadership skills and styles do these women of color IT leaders believe contributed to their success within the organization?
3. What recommendations would they provide to aspiring women of color in IT organizations?

Lastly this chapter includes the limitations of the study, recommendations for future research and implications for positive social change.

Interpretation of the Findings

The analysis of the interviews revealed similarities across ethnic groups and differences between ethnic groups in the responses. In the discussion below, the interview findings are grouped by research question, and document those areas where there is alignment across the ethnic groups. Any unique perspectives or differences based on each ethnic group are also included.

Research question 1

How do women of color in IT leadership roles perceive their journey to obtaining and sustaining their position?

There are four factors that contributed to the leadership journey for the women in this study (a) their definition of success, (b) their training, (c) their motivation for making IT a career, and (d) the barriers to their success. The top three factors included in their definition of professional success for these women are (a) delivering results successfully, (b) loving what they do, and (c) receiving recognition through compensation.

There were also three common factors in their definition of personal success: setting and meeting personal goals, happiness, and making a difference in the lives of others. These definitions of personal and professional success inform those factors important to the retention of IT women. Individually, they have a clear definition of success, which advises their decision to contribute to the success of their current organization or team, or leave the company and go to where their skills will be valued. This is discussed further in theme 2 in the conclusion section of this chapter.

The participants came from technical and nontechnical backgrounds, as represented by their undergraduate degree. Of interest is that 43% of these successful female IT leaders have a nontechnical background. The relatively high percentage of women without a technical degree who have become successful leaders in a highly technical field is significant. Therefore in addressing the shortage of talent in IT, organizations should not restrict their recruiting lens to those who are in STEM programs. Successful IT leaders can be attracted from the nontechnical fields and degree programs. This has implications to recruiting women for IT, and is discussed further in the section on recommendations to organizations.

The top motivation participants gave for selecting IT as a career were its career and earning potential. Another important motivator was the ability to work on the business side of technology. Motivation is an important factor in recruiting and retaining women of color, since this is related to their professional definition of success, which includes delivering results, receiving recognition, and receiving compensation. The opportunity to have the roles that give them the career and earning potential is discussed in the section on recommendations to organizations.

Three barriers to success were reported by all ethnic groups (a) a hostile work environment, (b) ethnic or gender stereotyping, and (c) unsupportive bosses or supervisors. The top barrier, a hostile work environment, was experienced as lack of air cover*,* tokenism, and lack of political support. Although they want to take the risks that are needed to progress in their career, women also need to have the visible support from the senior management, including sponsors. When this is missing, their reluctance to take the risks equivalent to their White peers is interpreted as lacking leadership potential.

All the participants, except the Asian women, reported experiencing tokenism, that is being simultaneously a visible representation of their ethnicity, and invisible to their boss for opportunities and promotion. This is possibly due to the higher percentage of Asian men and women in the IT workforce, where 14.1% of the computer and IT managers are Asians (United States Bureau of Labor Statistics, 2014). In comparison, 5% of computer and IT managers (men and women) are Black, and 4.3% are Hispanic (United States Bureau of Labor Statistics, 2014). This suggests that Asian IT women leaders may not face the same sense of isolation as in other ethnic groups.

Political support is the support required from bosses or sponsors to successfully navigate the organization culture. The lack of political support experienced by the participants is related to the difficulty that women of color have in getting sponsored in their company or organization (Hewlett et al., 2008, 2014). Of interest is that although all ethnicities faced this barrier, in the data, Black women focused on using political support to get access to opportunities. In the words of participant A008 “I don't really need you to open the door, just point me to the door because if I get to the door I'm going to kick the door open. I just want a chance".

This could be related to the socialization of Black women, who as young girls were taught to use their self-esteem and self-worth to gain strength and to push through or overcome barriers of discrimination (Clay et al., 2007; Davis, 2012; Thomas & King, 2007). This façade of self-sufficiency may prevent them from asking for help when things go wrong. This potential relationship between early influences on, or socialization of, African America women and their leadership strategies emerged in other areas of this research.

The majority of the participants in this study reported facing more gender stereotyping than ethnic stereotyping, and this was confirmed across ethnic groups. Based on the theory of critical race feminism (Livingston et al., 2012; Peterson et al., 2007; Sanchez-Hucles & Davis, 2010), it was assumed that more women would have reported experiencing a combination of ethnic and gender stereotyping. This suggests that the predominantly male culture of IT results in women of color experiencing discrimination

based on their gender. This extends the literature on the experience of intersectionality in male dominated fields.

Participants also reported the backlash and labels given to them when they were assertive, when they spoke up and were not intimidated by others, provided their opinion, took the leadership role, and were verbally direct. While assertiveness was celebrated in men, it was labeled and negatively perceived in women. This finding is supported by the literature on the social consequences faced by women when their actions are inconsistent with expectations of their gender (Hewlett et al., 2008; Lester, 2008; Livingston et al., 2012; Miller, 1986). This is the backlash effect of leadership gender stereotyping. However participants still made the recommendation to aspiring women leaders to be assertive. This is discussed in research question 3.

All ethnic groups reported the issues faced by having an unsupportive boss or supervisor. While the relationship between non-supportive boss and retention is documented in the industry reports (Hewlett et al., 2008, 2014), this study extends the literature by disclosing the manner in which these bosses are not supporting women of color in IT. This is further discussed in the section on what organizations can do to retain women of color in IT.

Research question 2

What are the strategies and skill sets that these leaders believe necessary to achieve success in IT organizations? What leadership skills and styles do these women of color IT leaders believe contributed to their success within the organization?

These women have established specific strategies for success that are informed by their personality traits, underlying motivators, and their definitions of success (professionally and personally). As leaders, they depend on their teams to deliver results, and have employed leadership styles that contribute to building and managing high performing teams.

Personality traits of successful IT women leaders. The top personality traits identified by the majority of the participants were dependability, loyalty, wisdom, forthrightness, determination, confidence, and being a caring, compassionate person who helps others. The personality characteristics are reflected in the top strategies that they personally use to be successful and how they manage others. These characteristics could also relate to the gender dissonance received from their male peers in the male-dominated IT environment.

Their determination and forthrightness can be interpreted as aggressive. Many spoke about being described in derogatory terms or being seen as controlling. Black women also reported the additional label of *angry black women* when they were assertive. There are implications that the IT definition of leader, which expects men to be aggressive and dominant, needs to be expanded to make that behavior accepted in women. This is discussed further in the section on recommendations for organizations.

Success strategies of women of color. The top success strategies employed by the participants were confidence, determination and the support from family, friends or faith. The success strategies are related to the overall personality traits discussed in the earlier section. The participants were extremely confident about the skills they bring to

the table, the value of that skill in their current environment, and the marketability of that skill outside of their current environment. They have learned not to let others intimidate them or abuse them. They invest in keeping up-to-date in their area of expertise, and do not assume that past knowledge and experiences will help them to be successful in their current role or environment.

The participants have an almost single-minded determination to succeed, to achieve their goal. Although the Asian participants did not explicitly list determination as a deliberate strategy, their self-described personality traits included being driven and determined. It could be that this is such an ingrained part of their personality that they do not consciously recognize their use of this as a success strategy.

Participants spoke about being *thick skinned*, and taking a deliberate decision to turn a blind-eye to prejudice. This finding is supported by the literature on coping strategies that women employ to depersonalize, compartmentalize, or otherwise ignore situations, in order to preserve their career and emotional well-being (Brooks Greaux, 2010; Rodriguez, 2011; Tarmy, 2012).

Asian and Black participants prioritized their need for support from family, friends and faith. However it could be assumed that this was also important to the Hispanic women, who discussed the importance of relationships in their personality traits, leadership style and building high performing teams. These women spoke about the need to have a support structure outside of work. They had a personal network of friends or people that they have surrounded themselves with that are *on their side*. This network

of friends or supporters, are available to talk through issues, combat the negativity in the workplace and provide additional coping mechanisms they needed to survive.

For all ethnic groups their success strategies and personality contribute to a high self-confidence and strong sense of self-worth that is expressed in a work style that is not intimidated by a persons' level or expertise. They will challenge those in authority, a style that may make others, especially White men, uncomfortable.

Strategies to deliver through high performing teams. Transformational leaders "inspire employees to go beyond the call of duty, foster creative solutions to problems, serve as mentors, create vision, and articulate plans for achieving this vision" (Vinkenburg et al., 2011, p. 11). The majority of the participants were transformational leaders, a leadership style expressed in the manner that they built and managed high performing teams. As successful leaders, the participants recognized the critical role played by their high performing teams to deliver results. This study revealed three characteristics contributing to team success: (a) a work ethic that expects the team to deliver results, (b) supporting the success of the team members, and (c) effectively managing upwards (that is managing their boss or supervisor).

The work ethic of expecting the team members to deliver results was valued by 18 participants and reported across all ethnic groups. They expect the team member to take ownership and be as committed to the outcome as they are. These women know that the bar has been set high for them to succeed, and as a result their expectations of their team is also very high. Some of the participants also spoke about not valuing team members

who attempt to leverage similarities in ethnicity or gender to grant them a position of privilege with the leader.

Supporting the success of the team members was the second highest value, and reported by 15 participants, from all ethnic groups. Their investment in supporting team members through development, providing opportunities and giving them visibility is in line with their personal definition of success (of helping others). Many spoke about the commitment of their team members to go beyond expectations in delivering results. In line with their personal commitments to respond to adversity through high personal standards for delivery and results, the women in this study set high standards for their team.

The participants also recognized the importance of successfully managing upwards, which is also documented in the industry research from Catalyst (Giscombe, 2011), and peer reviewed studies (Sanchez-Hucles & Davis, 2010). Their style varied by ethnic group. Asian participants used a combination of approaches, and had no dominant style. Black and Hispanic women managed their boss by setting clear expectations. The need for Black women to set clear expectations could be related to their importance they place on integrity and trust in managing their teams, as reviewed in the earlier section. Aligning goals and expectations reduces ambiguity, and allows them to establish a foundation of trustworthiness.

In line with setting clear expectations, these women established a reputation of delivering results with confidence and integrity. Those participants who prioritized building the relationship spoke about the importance of this activity, even though it may

be difficult to do so across gender and ethnic lines. Participants also ensured that they were communicating in a style and frequency that was aligned to their leaders. This is discussed further in the findings for research question 3.

Research question 3

What recommendations would they provide to aspiring women of color in IT organizations?

These participants recommended five strategies aspiring IT women of color leaders could employ to be successful:

- Know their strengths and be authentic.
- Ignore bias.
- Have confidence and courage.
- Build relationships.
- Take ownership of their career.

Know their strengths and be authentic. This strategy was recommended by all of the women. The women in the study recommended knowing and keeping ones' core values, integrity, and not losing that core in the search to become what others expected of you. This could be related to their expectations of integrity when working with their team, which was reviewed in the discussion on research question 2. The core message was that these women were not afraid to make the changes to their personality that was required to be successful. They recommend this as a success strategy, but tempered it with comments regarding knowing one's core and not losing one's authenticity.

This relationship between authenticity and the need to make personal changes in order to be accepted within the organizational culture, is paralleled in the literature on women who seek to fit into the male leadership culture by adopting masculine characteristics (Alford, 2011;Johnson, 2013; Rudman & Glick, 2001; von Hippel et al., 2011; Wang et al., 2010). It should be noted, however, that the women in the study did not specifically recommend adopting masculine leadership traits or characteristics.

Many of the participants spoke about their soft skills e.g. negotiation, collaboration, leading through influence, and emotional intelligence, that contributed to their success. They stressed the importance of focusing on developing and using soft skills. These women spoke about the role they played in bringing teams together to deliver results and the fact that they maintain relationships that they work with for years. While the relational nature of women as reviewed in the literature on gender socialization and the definition and use of power (Chiu, 2010; Chodorow, 1999; Lindberg, Hyde, & Hirsch, 2008; Miller, 1986) could have influenced this recommendation on soft skills, it also confirms the importance of the female perspective in improving business outcomes.

The women in this study also recommended that companies stop trying to transform the ethnic minority person to fit into the expectations set by the culture of those who make up the majority of the population (usually White male). This is discussed further in the recommendations to organizations in the section below.

Ignore bias. Twenty participants made this recommendation and refused to be defined by their ethnicity or gender. They advised other women of color to refuse to get caught up with the definitions and stereotypes that others may have of them but to focus

on their own ability. In relationship to the earlier discussion on the barrier of stereotypes, it is of interest that all these women spoke strongly of not wasting energy in responding to bias in the workplace, or as some participants stated being *thick skinned*. In addition, some participants recommended delivering above expectations, an approach that they personally took for themselves and their teams. In the words of these participants, women and especially women of color, need to work harder than everyone else just to be granted access. They recommend focusing on delivering over and beyond expectations and not making excuses.

Participants made several recommendations on professionalism, image and managing one's sexuality for women and women of color. They spoke about conduct in the workplace, and being aware of one's sexuality. The participants felt that it was inappropriate to use flirtation, provocative dressing and other distractions to get ahead. They believed that while this may work for a while, it was usually detrimental for the woman concerned. Participants advised ensuring that one's attire was appropriate for the workplace. While some advocated a style that toned down their femininity, the majority believed that you could be feminine in your attire without being provocative.

The core message was not to adopt styles that were unprofessional or could distract their male counterparts from their skills and capability. This also extended to styles that may be ethnically acceptable, but may trigger responses in the White community that have unexpected negative consequences. For example, one of the participants spoke about a situation where her White peer refused to have one of his

African America employees take a customer facing role because the employee wore her hair in French braids.

These findings support the research on resilience and self-esteem for women of color that is gained through ethnic socialization during childhood (Campbell, 2011; Davis, 2012; Telzer & Garcia, 2009; Wilder & Cain, 2011; Yosso, 2005), and extends it as an effective strategy and potential underlying factor contributing to the resilience of these IT women. It is of interest that although specific references to childhood upbringing were not included in the scope of this study, the discussion on the early career development, personality traits, and motivators, uncovered implicit and explicit messaging. These women felt that they felt that were pre-destined to succeed or that failure was not an option. The additional coping strategy of delivering above expectations, and setting higher than expected professional goals, as a response to bias for women in IT warrants further research.

Have confidence and courage. Women of color, across all the ethnic groups, made this recommendation. They recommend having an unshakeable belief in yourself, even if no one else has. Participants also spoke about being courageous and fearless. Some participants mentioned the difference in style between men and women, where women will hold back from expressing their ideas, while men will speak up, even repeating someone else's idea.

They stated that women have a tendency to want to be sure they have the data to backup what they are saying, and that women communicate in a way that phrases their point as a question or as if they were asking permission, versus stating a position. The

advice from these participants was to speak up, or, using Sheryl Sandberg's (2013) terminology, to *Lean In*, even at the risk of being seen as aggressive. An area for future study would be to compare the role of the communication style of IT men and women on their leadership effectiveness.

They spoke about being courageous, fearless and to resist placing limits on themselves or accepting the limitations to their potential from others. Although there may be concerns about being viewed as aggressive women, many of these participants still advise women of color to be assertive. This finding is in line with the literature on the backlash women can experience when they adopt behavior e.g. communication styles, decision making styles, or leadership behavior, that is not in line with gender expectations (Alford, 2011; Alvarez, 2002; Alvarez, Juang, & Liang, 2006; Iwamoto & Liu, 2010; Johnson, 2013; Rudman & Glick, 2001; Rutherford, 2001). It supports the literature on the behaviors women need to adopt in order to succeed in male-dominated fields.

The earlier discussion on soft-skills also supports the literature that states that the agentic competencies of dominance and aggressiveness would be more accepted in women when partnered with social skills, a relational, collaborative and partnering leadership style, and demonstrated mindfulness or genuineness (Alford, 2011; Brooks Greaux, 2010; Gibson, 2011;Johnson, 2013; Kawahara, Esnil, & Hsu, 2007; Kawakami et al., 2000; Rodriguez, 2011; Rudman & Glick, 2001). This study extends these findings to the literature on IT women of color.

Build relationships. The women in this study overwhelmingly spoke about the need to build relationships and network, not just with those of similar gender and ethnicity but across the board. They spoke about the importance of building relationships with ones' boss, peers and those below oneself in the organization. The participants recommended deliberately working to increase the level of comfort of the boss, peers, etc., with the aspiring woman of color.

The literature supports the effectiveness of relationship building by women as a component of their leadership style (Alford, 2011; Combs, 2003;Johnson, 2013; Lester, 2008; Marques, 2011; Rutherford, 2001; Scales, 2011; Stainback & Tomaskovic-Devey, 2009). This research expands the literature on the importance of using networks that cross ethnic and gender boundaries, to the career success of women of color in IT.

The other key point made by was the importance of self-promotion. As one participant stated "know your stuff, but let them know you know your stuff" (participant AA009). The participants reported that this is a skill that men appear to do easily. Although the role of exclusion from men-only networks has been discussed in peer reviewed literature (Anyaogu, 2013; Foust-Cummings, Dinolfo, & Kohler, 2011; Sanchez-Hucles & Davis, 2010; von Hippel et al., 2011; Wellington et al., 2003), the importance of self-promotion for IT women has only been discussed in industry reports (Hewlett et al., 2008; Institute for Leadership Development & Research, 2008). This research adds to the peer reviewed literature by recommending networking strategies for self-promotion to IT women of color leaders, and its importance to the advancement of women of color.

The majority of the participants in the study were women who have leveraged their communication skills, their emotional intelligence, and other soft skills to engage the business. They report being successful because of this skill and their ability to engage the business and become trusted advisors to their business partners. Several participants believed that this gave them a distinct advantage over the typical White IT male who was more technically focused and generally unable to make that transition to communicate effectively with their business partners. They reported using their Emotional Intelligence to *read* the undercurrents in a room, navigate landmines, identify strategies to build bridges with difficult people, get the most out of a diverse team by ensuring everyone has an opportunity to be heard, etc.

In line with some peer reviewed research on the role of soft skills in creating a gendered identity for women in the IT environment (Guerrier, 2009), some of the participants suggested that women are better suited for particular roles in IT. The roles they suggested were those that required interacting with the business, or utilized soft skills versus the purely technical roles. Other participants, particularly those that had a formal technical education, viewed the use of their soft skills as a competitive advantage to be used in addition to their technical skills. This discussion on gendered IT roles is an area that has implications to the recruiting and retention of IT women, and warrants further investigation.

Take ownership of their career. The women in this study recommended that women take ownership of their career, including having sponsors, and being strategic in

planning their career path. They spoke about being clear about ones' leadership goal, including developing a strategy to address the unique issues that will arise.

Black, Asian and Hispanic women also spoke about the importance of developing political savviness. These participants recommend finding mentors to help one understand the politics of the company, and how to navigate them. Several participants spoke about the *game* or the politics of the organization, and being aware that it exists. They advised women of color who aspire to become leaders to participate in organizational politics, that is, to play the game.

This is a critical role of sponsors and to some degree mentors. With limited access to sponsors and mentors, women of color are placed at a disadvantage politically (Doss, 2011; Kilian et al., 2005; Okurame, 2008; Scales, 2011; Toson, 2012). Therefore the participants recommend taking the responsibility of actively identifying resources such as mentors and sponsors, to help successfully navigate corporate politics. This is discussed further in the section on recommendations to organizations.

One common characteristic with these participants is that they changed roles or companies several times during their career. They viewed this as a method of managing their career and ensuring that it remained on track. They were willing to take risks, including leaving their company to start their own business, taking stretch assignments, transitioning to a new role, or just going to other organizations or companies where they believed the opportunities were. They admitted that not every risk worked out, but they did not regret taking the risk. This has implications to the retention of women of color in IT and is discussed in the section on recommendations to organizations.

Recommendations to organizations–expanding the pipeline

As successful leaders invested in the success of other women of color, these participants provided advice to the organizations seeking to build or expand their pipeline of women of color leaders in IT. The steps are:

- Actively address the biases and micro-inequities in organizational processes.
- Hold leaders accountable for diversity results.
- Develop men and women to lead diverse teams.

As revealed in this study, in order to address the issue of low numbers of women of color leaders in IT, social change has to occur. This requires changes in the organizational culture, which can only occur through the members within that culture. The recommendations by the women in this study address the transformation of the male-dominated IT culture. They also support the recommendations made to aspiring women of color IT leaders who seek to become successful in this culture. This will be discussed further in the section on the implications to social change.

Actively address the biases and micro-inequities in organizational processes. All of the participants spoke about the environment that is required for the woman of color to thrive. One point made and echoed by them is that an environment that is hostile for a woman of color may not appear to be hostile for those who are White. Most participants described the micro-inequities that resulted in women of color leaving organizations, stating that these were more prevalent than the blatant issues that would trigger formal employee disputes. Examples of micro-inequities included job descriptions that used terminology associated with or favored by White males, ignoring or discounting

comments made by the woman of color (yet supporting the same comments when repeated by a White person), subtly discounting their technical expertise, assuming that their expertise is limited to nontechnical roles, etc.

The participants challenged companies to implement succession planning, promotion, performance review, and project or role assignment processes that support the advancement of women of color. An example was given about an announcement for promotions to Vice President at one of the participant companies. She observed that all of the promotions were for men including one Black male. The participant commented on the message similar promotion announcements sent to employees regarding the company's commitment to women of color. In her view, it demonstrated that either the women of color were not being prepared for those leadership roles, or that they were not being considered for those leadership roles.

The view of these women, the foundation for succession planning was an active pipeline of high potential women of color. This requires deliberate effort to support and prepare these women to be ready for the higher level positions, through sponsorship, roles that provide exposure and visibility, and supportive organizational processes. The role of supporting processes, e.g. for performance evaluation and succession planning, to address micro-inequities, promote advancement and to create a supportive work environment extends the literature on retention of women of color in IT.

Hold leaders accountable for diversity results. The participants overwhelming spoke about the need for companies to go beyond talking about the need to have diversity in their organization. They recommend making it a priority and holding leaders

accountable for making the required changes. This includes holding leaders accountable for having diverse slates of qualified candidates, hiring qualified diverse candidates, promoting diverse candidates and their retention numbers of these diverse employees.

Of interest is a comment made by participant AA003 on the interpretation of diversity for White women in IT. She observed that when White women in IT speak about diversity, their focus is on increasing the numbers of White women in IT. The women in this study voiced their concern that the discussion on diversity needs to be extended beyond hiring ethnically diverse men and White women in IT. They also recommended looking outside of the technology field for women. In light of the data in this study where 43% of these successful women of color were from outside of the technology field, this represents an under-tapped market for organizations.

Develop men and women to lead diverse teams. Supervisors can be the defining point for women in an organization (Hewlett et al., 2008, 2014; National Center for Women & Information Technology, 2014a; Tahmincioglu, 2012). In industry reports, participants stated that good supervisors can support diverse candidates in an otherwise difficult environment by providing feedback, air cover, and opportunities for visible roles, while bad supervisors are one of the top reasons that women leave IT (Hewlett et al., 2008, 2014; National Center for Women & Information Technology, 2014a; Tahmincioglu, 2012). .

Unsupportive bosses and supervisors are one of the barriers to success reported by women of color. Although this finding is supported by industry research (Hewlett et al., 2008, 2014; National Center for Women & Information Technology, 2014a;

Tahmincioglu, 2012), this study extends the peer reviewed literature on how to reduce the incidents of women of color leaving IT, by developing men and women to lead diverse teams.

The role of supporting women of color with mentors and sponsors was included in this recommendation to organizations. Participants highlighted the importance of becoming politically savvy in their recommendations to aspiring women of color leaders. In support of that comment, they also recommended that organizations support women of color in their need to have sponsors that will help them navigate the political environment.

The importance of sponsors to the advancement of women has been discussed in the literature (Cooper, 2013; Foust-Cummings et al., 2011; Giscombe, 2011; Marques, 2011). This study extends this literature by highlighting the importance of sponsors to the advancement of women of color in IT. Although some suggestions were made on methods women of color IT leaders can employ to overcome the barrier of ethnicity and gender in their search for sponsorship, further investigation is needed in this area.

The participants also recommended working on changing the definition or expectation of what an IT leader is, in order to be more inclusive of women and diverse people. They encouraged companies to review their conscious and subconscious definitions of leaders and leadership and determine if the processes and actions overwhelmingly assume the leadership characteristics of a White male. One participant put it clearly when she spoke about the additional hurdles that women are expected to

overcome in order to first make a man comfortable with her style, approach, or difference from what they expected or are used to.

In contrast, men can go ahead and just do their job, to be effective leaders, without any additional dissonance with an expected gender based behavioral standard. The women recommended that companies should actively seek to remove these hurdles from their culture and invest in training men to be leaders that understand and accept a new definition for leadership. This definition is one that is not grounded in the male gender, and one that accepts and leverages diversity of style and thought.

They felt that the focus of leadership training should change from bringing in diverse candidates, and training them to fit into the White male culture. Leadership training should be about ensuring that the IT organization builds better leaders to drive and deliver business results through diverse teams. These women recommended that companies start by reviewing and transforming their leadership definition. Companies need to make the appropriate changes to policies, processes and people, to a model that is inclusive of different leadership styles. They recommended doing this through training for men and women on what is true leadership. Of interest is that the Black women also spoke about the need to stop the typical ethnic minority leadership training in organizations that focuses on making the ethnic minority more *acceptable* to their White counterparts. Participant AA003:

> I think companies have to think about - it's not all the onus on the woman. It always feels to me that they spend more time trying to change you into something

that makes a man feel comfortable at the end of the day. Or something that makes white America feel comfortable

Given the importance of supportive supervisors to the advancement of women of color in IT, the research uncovered the characteristics these women of color expect in a supportive boss. These characteristics are:

- Value the unique skills/styles of the woman of color.
- Provide opportunities, visibility and air cover to the woman of color.
- Provide the clear feedback these women of color need to hear to be successful.
- Focus on their results not the external package based on gender or ethnicity.

Companies can learn from these characteristics, and use them to develop leadership performance standards, and leadership development training. They recommend implementing training to include these characteristics in training men and women leaders, not just women or women of color. This contribution to social change will be discussed in the Implications section.

Limitations of the Study

The distribution of ethnic groups within the sample was 55% Black, 18% Asian, 9% Hispanic and 18% Other Females. A review of the ethnic distribution in the 2013 United States Census data (United States Bureau of Labor Statistics, 2014b) shows that there is a higher representation of Asian women in the IT workforce, which is 52% Asian, compared to the relatively low number of Asians in the sample.

The sample, while purposeful was restricted by the availability and access of women in the target population. Although the total number of interviews was appropriate

for the type of study, additional Asian and Hispanic candidates would have provided the opportunity to extrapolate findings unique to those ethnic groups. Many other women expressed interest in participating, but could not commit to be interviewed in the timeline allocated for data collection. Therefore while the findings can be interpreted for IT women of color as a category, analysis of findings within ethnic groups was limited.

Recommendations

- Most women reported facing more gender stereotyping than ethnic stereotyping. Based on the theory of intersectionality (Livingston et al., 2012; Peterson et al., 2007; Sanchez-Hucles & Davis, 2010), it was assumed that more women would have reported experiencing a combination of ethnic and gender stereotyping. This suggests that the predominantly male culture of IT, results in women of color experiencing discrimination based on their gender. This extends the literature on the experience of intersectionality in male dominated fields, and warrants further investigation to determine the extent to which this is prevalent within IT and the implications to training, organizational processes and leadership effectiveness.
- The emergence of gender stereotyping versus ethnic stereotyping in the experience of the study participants warrants a larger study to compare and contrast the experiences of IT women across ethnic groups. Although this study focused on IT women of color, future research should extend this study to White women to compare the results from this study to that of the White female experience.

- Although Asian and Black participants prioritized their need for support from family, friends and faith, this was not reported in the Hispanic participants. However it could be assumed that this was also important to the Hispanic women, who discussed the importance of relationships in their personality traits, leadership style and building high performing teams. Further research is needed on the supportive networks, including features of the networks, types of networks, and the role of those networks, utilized by successful IT women of color. This include the role of these networks in feeding their resilience and self-esteem to combat the barriers to success they face in their work environment, providing access to sponsors, etc.
- Many spoke about the commitment of their team members to go beyond expectations in delivering results. In line with the personal commitment of these women, to respond to adversity through high personal standards for delivery and results, they set high standards for their team. A topic for future study would be to determine if IT teams led by women of color perform at higher levels and deliver better results than those teams led by their White peers. It is posited that with higher expectations set for their teams by women of color, the influence of their leadership styles and skills, and their ability to value and lead diverse teams, leads to better results. This may also contribute to improved organizational success and attract higher performers to those teams or companies with diverse leaders.

- Recommendations were made regarding the need to have a new, inclusive definition for an IT leader, one that is not skewed towards the male gender expectations. The participants in this study provided the initial components of this inclusive definition. Future research could use qualitative & quantitative methodologies to identify the top components of this leadership definition, and develop a competency model and assessment tool to evaluate IT leadership effectiveness.
- The role of supporting processes e.g. for performance evaluation and succession planning, to address micro-inequities, and to create a supportive environment for women of color extends the literature on retention of women of color in IT, and warrants further investigation.

Implications

This qualitative, phenomenological study used interview questions to explore the factors leading to the success of women of color leaders in IT and the organizational culture changes required to support the development or expansion of their leadership pipeline. It provided a voice to the small number of women of color in IT. This research shows that to recruit and retain these women requires knowledge of them as women of color, and of their ethnicity as Asian, Black, and Hispanic. The fact that 18% of the population refused to be categorized as one of these ethnic groups also provides a voice to those who seek to be defined as individuals, who cannot be categorized into simplistic ethnic boxes.

The data analysis of the lived experiences of these 22 women addressed the three research questions and identified two key themes:

- *Theme 1: Giving a voice to the invisible.* "I call myself the unicorn because I'm a black female in IT. So we don't exist. And almost every company that I have been to, have been [a] handful" (Participant AA013). The assumption is that the low numbers of women of color in IT supports treating them like White women. This study shows that there are unique differences in recruiting and retaining these women of color, and this extends to differences between ethnic groups.
- *Theme 2: It's more than numbers – it's whom you keep.* "We haven't been doing a good job in the retention stage. I think we've lost a lot of really good people that I didn't want to see going out the door… It's just people I knew were really good, that looked a lot more like me than the ones that stayed" (Participant H001). To retain women, organizations need to develop an environment that supports their success. This includes supportive bosses or supervisors, removing barriers and micro-inequities inherent in recruiting, succession planning, promotion processes, and training male and female leaders to manage diverse teams. This study contributes to social change by providing insights on the organizational culture changes required to retain these women.

Responses to the interview questions described participants' methods for succeeding in their environment, and the consistency in their answers formed the basis

for conclusive analysis of the similarities across ethnic groups, and the unique characteristics within ethnic groups. This study provides recommendations to change the organizational culture that these women of color have survived and managed to thrive in. It emphasizes that change needs to occur at the broader organizational level, and that it is not up to the ethnic minority population to try and conform to the social requirements of the largely White male population in IT. Social change needs to occur within the organization by having the members of the organization, which is largely represented by White men, making changes within the culture. This is through a broader, inclusive definition of an IT leader, and through training of all men and women to be transformed to this new definition.

Conclusion

This participant pool of very successful, motivated leaders represents the wide range of career challenges and opportunities faced by women of color. A core characteristic of these women was their willingness to make a change in their career path in order to achieve their ultimate goals. However these participants have also redefined their objectives during the course of their career. In this participant pool, two participants retired from IT and moved to other careers outside of IT. Three participants expressed their belief that their career was at its peak, and have opted to re-evaluate their career goals for going to the next level. Nine participants were actively planning to leave their current company and are looking for new jobs.

Only three participants were motivated by recent changes in their reporting structure and felt that they were on track to being promoted to the next level or have

significant opportunities granted to them. Given the industry data that documents a 56% attrition rate for women who have been in their IT career for 10 to 20 years (Hewlett et al., 2008), this study suggests that organizations face a higher risk of attrition from their leadership pipelines.

IT women of color leaders are confident, determined, and will take risks to get ahead, including leaving their current company or the IT field. They are underrepresented in their organizations, visible reminders of their uniqueness, yet invisible when it comes to promotions or opportunities. The women in this study spoke clearly and frankly about their journey, and the obstacles they faced, yet their story was not one of barriers, it was one of triumph. The participants spoke with blended voices that represented their uniqueness as women hailing from different backgrounds and representing a diversity that goes beyond skin color and gender.

It is this blended voice that needs to continue to be heard in future studies that build upon this foundation, this initial journey into their experience as IT women of color. Organizations will benefit from the determination, the courage, and the tenacity of this group. Teams will benefit from the developmental focus, the collaborative approach, and the emotional intelligence that these leaders bring to the table. It is my hope that we will all learn so much about these *unicorns* (as one participant describes herself), that they will stop being invisible.

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Appendix A: Interview Protocol

The following script was developed for use by the researcher in the interviews:

"I want to follow your leadership journey to the position you are in today. This will be an open discussion – I will ask a few questions to prompt the discussion or get clarification – but I would like you to take the path that is most familiar and comfortable for you. I'll start us off with a general question."

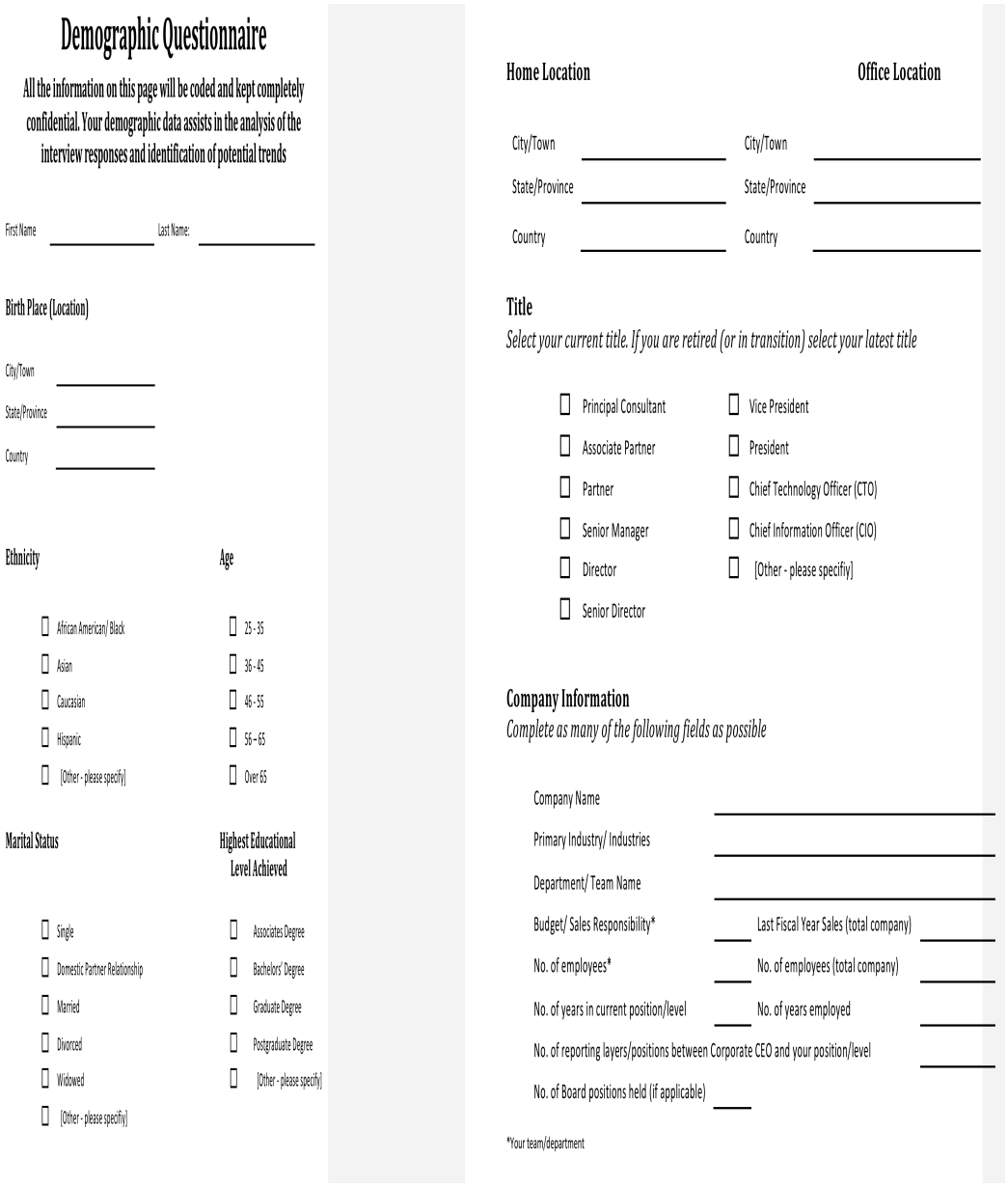
1. Can you tell me about how you started working in IT and how your career has developed?
    a. How did you prepare yourself for a career in IT?
    b. What was your first technology related job? Why did you choose it?
    c. What was your pathway to leadership? Why do you think it took the route it did?
        i. What are some of the obstacles you experienced along your journey and how did you overcome them?
        ii. What are some of the experiences you went through that helped you along the way?
2. Describe the defining moments - successful and disappointing - in your career
    a. Why were these significant to you?
    b. How did they influence your ability to achieve the IT leadership position you have today?
3. Do you feel your working environment supports the advancement and retention of women of color in the IT field?

   a. If so, how? If not, how would you like to see your work environment changed?
   b. Do you believe that there are differences in the experience of your work environment by White women? By men?
4. How would you define success?
   a. Describe your experience of attaining career success
   b. Looking back, what are some of the things you would have done differently on your path to success?
   c. Reflecting on your own experience, are there any factors of the IT job that could hinder women from achieving career success?
   d. Do you feel your rise to the top was harder as a woman of color?
   e. Do you think you have the same opportunities as your White female and male counterparts for career success?
5. Who would you describe as having the greatest influence (positive or negative) on your career? Why?
   a. Can you describe the roles of mentors and sponsors in your career progression and in your current role?
   b. What are some of the ways that mentors and sponsors have helped?
   c. What are some of the ways that a lack of mentors or sponsors has hindered your progression?
6. Thinking back on your experience, what leadership tools did you use to achieve success?

   a. How would you describe your leadership style or philosophy?
   b. Describe your decision-making process. How do you go about resolving an issue or selecting a solution?
   c. What leadership characteristic do you value in your employees?
   d. What challenges do you face in your day-to-day dealings with employees?
   e. Are there other aspects of leadership that you feel impact your experience as a woman of color leader?
   f. Do you have a philosophy that guides you in your day to day?
7. When you have experienced difficult times how would you say you have gotten through it?
   a. What is your overall outlook for life? Are you one who tends to see the glass half full?
   b. How would people you know say you respond to difficult situations?
   c. As you look at your life what would you say sets you apart from anyone else?
8. What advice can you give to other women about how they can influence the culture to support their career success?
9. What advice can you give to organizational leaders about how they can influence the culture to support the success of women of color in IT?

Appendix B: Demographic Questionnaire

Before each interview, the participant was provided with a short demographic questionnaire (see Figure 9) that was used to provide additional information for data analysis and triangulation of the findings.



Demographic Questionnaire

All the information on this page will be coded and kept completely confidential. Your demographic data assists in the analysis of the interview responses and identification of potential trends

First Name _____ Last Name: _____

Birth Place (Location)

City/Town _____

State/Province _____

Country _____

Ethnicity

- ☐ African American/ Black
- ☐ Asian
- ☐ Caucasian
- ☐ Hispanic
- ☐ [Other - please specify]

Age

- ☐ 25 - 35
- ☐ 36 - 45
- ☐ 46 - 55
- ☐ 56 – 65
- ☐ Over 65

Marital Status

- ☐ Single
- ☐ Domestic Partner Relationship
- ☐ Married
- ☐ Divorced
- ☐ Widowed
- ☐ [Other - please specify]

Highest Educational Level Achieved

- ☐ Associates Degree
- ☐ Bachelors' Degree
- ☐ Graduate Degree
- ☐ Postgraduate Degree
- ☐ [Other - please specify]

Home Location

City/Town _____

State/Province _____

Country _____

Office Location

City/Town _____

State/Province _____

Country _____

Title

Select your current title. If you are retired (or in transition) select your latest title

- ☐ Principal Consultant
- ☐ Associate Partner
- ☐ Partner
- ☐ Senior Manager
- ☐ Director
- ☐ Senior Director
- ☐ Vice President
- ☐ President
- ☐ Chief Technology Officer (CTO)
- ☐ Chief Information Officer (CIO)
- ☐ [Other - please specify]

Company Information

Complete as many of the following fields as possible

Company Name _____

Primary Industry/ Industries _____

Department/ Team Name _____

Budget/ Sales Responsibility* ____ Last Fiscal Year Sales (total company) _____

No. of employees* ____ No. of employees (total company) _____

No. of years in current position/level ____ No. of years employed _____

No. of reporting layers/positions between Corporate CEO and your position/level _____

No. of Board positions held (if applicable) ____

*Your team/department

Figure B1. Demographic Questionnaire

Appendix C: LinkedIn Interest Email

I am Annette Skervin, a doctoral candidate in Applied Management and Decision Sciences at Walden University. This email is to invite you to indicate your interest in participating and/or recommending participants for a ***one-hour interview*** for my research on ***"A Phenomenological Study of the Success Factors for Women of Color Information Technology Leaders in Corporate America"***.

The issue this study seeks to address is the underrepresentation of women in leadership levels in Information Technology. The research will focus on the experiences of female senior IT executives, in order to understand the factors contributing to their success. It will also determine the influence of ethnicity, individual, and organizational level factors on the presence of women as senior IT leaders in corporations.

I am looking for ***female*** research participants who meet the following criteria:

a) Work (or have worked) in the field of Information Technology

b) Have held one or more of the following positions (or their equivalent): Chief Information Officer, Chief Technology Officer, Senior Director, Director, President, Vice President, Partner, Associate Partner, Principal Consultant, Senior Manager

c) Are a Woman of Color (e.g. Hispanic, African-American, Asian American, etc.)

I am inviting you to help this research in one of two ways:

- By indicating your interest to become a participant based on the above criteria and/or
- By recommending potential in-scope candidates

Those candidates that express an interest in participating will receive a consent form that will outline the purpose of the study, its confidentiality and the rights of the participant to drop-out of the research without penalty. Those that agree to participate (via a signed consent form) will be asked to schedule a ***one-hour confidential interview*** – their name and identity will be kept confidential and not disclosed to any outside party. Their experience will be combined with that of other participants, and used to identify foundational enablers to success, and principles that can be applied within companies to expand their leadership pipeline in Information Technology. Every participant will also receive an executive summary of the research findings.

Should you be interested in becoming a participant (or in recommending potential candidates for) this study, please respond via e-mail to Annette.Skervin@waldenu.edu. Also, direct all questions regarding this study to the researcher at Annette.Skervin@waldenu.edu or [redacted]

Thank You,
Annette Skervin

Appendix D: IRB Approved Consent Form

CONSENT FORM

You are invited to take part in a research study that is designed to identify how women of color in Corporate America are able to attain and sustain senior leadership positions in Information Technology (IT). This study aims to gain a sense of their personal experience of the culture of Information Technology. You were selected as a possible participant because as a woman of color executive in Information Technology you have a unique, important and valuable perspective to offer the IT community. The total number of women recruited for the interview portion of this study is expected to be between 15 and 20. This study will add to the existing body of knowledge by providing insights on successful retention practices for organizations, and individual strategies for IT women of color seeking leadership positions.

A researcher named **Annette Skervin**, who is a doctoral candidate at Walden University, is conducting this study. The researcher is inviting women of color (e.g. Asian American, African American and Hispanic American) who are senior leaders (i.e. Principal Consultant, Associate Partner, Partner, Senior Manager, Director, Senior Director, Vice President, President, Chief Technology Officer (CTO) or Chief Information Officer (CIO)) and who are working (or have worked in) Information Technology in corporate America, to be in the study. This form is part of a process called "informed consent", that will allow you to understand this study before deciding whether or not to participate in this research.

Background Information:
Women are significantly underrepresented in the leadership levels of the Information Technology (IT) field. In 2013, approximately 12% of the US CIOs were women, and women (at all organizational levels) represented approximately 26% of all computer-related occupations. Compared to the national representation of employed women in the workforce (approximately 47%), these numbers are concerning. Although prior research has studied the underrepresentation of women in IT, it has focused on Caucasian women. When minorities were studied, the discussion was focused on the ethnic or racial group and did not provide information on the gender composition or distinctions. The purpose of this phenomenological study is to investigate the experiences of women of color as senior IT executives (e.g. Chief Information Officers, Vice Presidents, Directors, Partners, Senior Managers, etc.) in order to understand the success factors that have contributed to their ability to attain these positions. The research questions are meant to address how select demographic, individual, and organizational level factors serve as predictors of the presence of women of color as senior IT leaders in corporations. The results of this research will promote social change by addressing the underrepresentation of women of color at senior levels in Information Technology and supporting programs that increase the number of women of color in the leadership pipeline.

Procedures:
If you agree to be in this study, you will be asked to:

- Sign this document (the informed consent form)
- Agree to schedule and participate in a 60-minuite interview (either in person, via Skype or conference call) with the researcher. This interview will be recorded.
- Complete a short demographic questionnaire (will require less than 5 minutes of your time)
- Agree to be available for a 30 minute session to answer follow-up questions, review (provide changes if desired), and approve the interview summary. You will be provided with the option to delete and/or change the content of your interview summary.

Here are some sample questions:

1. Can you tell me about how you started working in Information Technology (IT) and how your career has developed?
2. Describe the defining moments - successful and/ or disappointing - in your career

3. Do you feel your working environment supports the advancement and retention of women of color in the IT field?
4. How would you define success?
5. Who would you describe as having the greatest influence (positive or negative) on your career? Why?
6. Thinking back on your experience, what leadership tools did you use to achieve success?
7. When you have experienced difficult times how would you say you have gotten through it?
8. What advice can you give to other women about how they can influence the culture to support their career success?
9. What advice can you give to organizational leaders about how they can influence the culture to support the success of women of color in IT?

Voluntary Nature of the Study:
This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at your company or at Walden University will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind during or after the study. You may stop at any time.

Risks and Benefits of Being in the Study:
Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life. You may experience some discomfort during the process of retelling events that were upsetting or stressful. I may also ask you a question that (for whatever reason) you would prefer not to answer completely (or at all). If this occurs, you do not need to answer the question. Other than the matter of provocative questions, there are no reasonable foreseeable (or expected) risks.

It is beneficial, to study the success factors that would inspire women of color to aspire to senior leadership positions within IT. The US Department of Labor projects that by the year 2016 there will be 1.5 million computer specialist job openings in the United States, with job opportunities growing five times faster than in other areas. The demand for these jobs is outstripping the supply. There is research that predicts that just bringing back (or preventing the attrition of) 25% of the current female Science Engineering and Technology (SET) employees will add 220,000 highly skilled employees to this critical pipeline. ***Your participation in this research will help to promote social change, by providing insights to those IT department leaders implementing programs to recruit and retain more women of color candidates in their leadership pipeline.*** This research will also be of value to those companies seeking to effectively attract and retain the intellectual capital of these female leaders.

Payment:
As an incentive for participating in the study, you will be provided with an executive summary of the research findings. This information can be used to support your diversity initiatives within your company and/or information technology department.

Privacy:
Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure by:

- Coding any names of employers, bosses, co-workers, etc. that are provided during the course of the interview, in the interview summaries, report analysis and results. For example the name of a former boss may be listed at Mr. Smith with the note that a pseudonym was used.
- The digital recordings from the interviews will be stored on a USB drive and kept in a locked cabinet in the researchers' home office until written transcriptions are completed and validated.
- These digital recordings will be deleted and the USB drive destroyed after the five-year period required by the university.
- The written transcripts will be stored in encrypted, password-protected files. For the purpose of the research and follow-up, there will be two versions of the transcripts.

- The original transcript (verbatim version of the digital recording), consent forms, and demographic data will be stored as an encrypted, password protected file on a USB drive and kept in a locked cabinet in the researchers' home office. This data will be destroyed five years after initial recording.
- A modified transcript and demographic data form with coded references to the participant and any other personally identifiable data will be stored in an encrypted, password protected file on the researchers' local computer hard disk. This version will be used for subsequent analysis, and destroyed (files deleted from local drive) 10 years after the approval of the dissertation.

Contacts and Questions:
You may ask any questions you have now. Or if you have questions later, you may contact the researcher via telephone ([redacted]) or email (Annette.skervin@waldenu.edu). If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 1-800-925-3368, extension 3121210. Walden University's approval number for this study is **08-20-14-0100911** and it expires on **August 19, 2015.**

Please keep a copy of this consent form for your records.

Statement of Consent:
I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By replying to this email with the words, "I consent", I understand that I am agreeing to the terms described above.

This has been approved by the Institutional Review Board of WALDEN UNIVERSITY as acceptable documentation of the informed consent process and is valid for one year after the stamped date.

2014.08.20 18:04:56 -05'00'