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THE GLASS CEILING: EXPLORING THE LEADERSHIP JOURNEY OF MEN AND
WOMEN IN HIGH-TECH

by

Shelia Faye Krueger

A dissertation submitted in partial fulfillment
of the requirements for the degree of

Doctor of Philosophy

August 2020

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Men and Women in High-Tech

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ABSTRACT

The literature is replete with evidence of the proliferation of women entering into the workplace, their remarkable progress in attaining higher education, their overrepresentation in professional and management roles, and their placement in CEO leadership positions in certain high-profile S&P 500 global companies. Yet women continue to be noticeably underrepresented in leadership roles, especially in high tech companies. Through the lenses of social constructivist and feminist theories of gender stereotypes, social/gender roles, and role congruity expectations, this instrumental case study was conducted to gain insight into the reasons women are underrepresented in leadership roles in high tech and the ways some women have successfully challenged the glass ceiling. Participants were executive women ($n = 5$) and men ($n = 5$) in high tech. To allow discussions about gender inequity to emerge organically while still using interviewees' time efficiently, data were generated using a semi-structured protocol. Key findings about factors that supported women's ascension into leadership positions in high tech companies that emerged from a thematic analysis of the interview data included the perceived influence of personal and professional support, an encouraging company culture, and personal characteristics that appear to contribute to a woman's ascension to high-level leadership positions in high tech companies. Perceived challenges to leadership ascension included negative company cultures; a lack of leadership development opportunities and a lack of advancement opportunity, generally; self-selection out of the process; a failure to manage failure; and, for certain women, pregnancy and motherhood.

DEDICATION

There is no way I would be where I am today if it weren't for my mother, Rita Rae McDonald. She barely graduated high school, which limited her access to higher paying jobs and opportunities. She also attempted to join the military, but her dad discouraged her saying it wasn't appropriate for a woman unless she was a lesbian or a "loose" woman—which one was she?

My mom instead did what every other woman in the family did. She married. For her, like many others, it didn't work out. She became a single mother to me and my brother. Growing up, I recall how hard she had to work to make ends meet. She was unskilled and worked back-breaking, tedious jobs with low wages and undesirable second and third shifts all to make sure our basic needs were met.

In many ways, the barriers my mother faced were very different than those related to the concept of the glass ceiling. Yet many challenges seemed to be rooted in similar stereotypes and social expectations of women. While my grandfather sought to keep Mom in her stereotypical role, my mother encouraged me to do something different. She told me to dream big. Her advice was not just to follow your dreams but to make your dreams reality. Ever the pragmatist, she also told me to be careful. Dreaming was easy and could lull you into inaction. Achieving your dreams is really where the work is. I used to think she meant work as in manual labor or proving yourself worthy; however, as I reflect back, I think she actually meant work in the sense of holding your ground against societal backlash you face when you reject stereotypes assigned to you. I know from experience how challenging that can be. In reality, my mom was my first mentor who

taught me an important life lesson. You aren't destined to repeat the cycle you are in. You have agency to break it.

Throughout my pursuit and attainment of both my bachelor's and master's degrees, my mother cheered me on every step of the way. Unfortunately, she was not here to see me through this PhD journey, at least not from an earthly view. This dissertation is dedicated to my biggest fan whose capacity for love was overflowing. Mom, thank you. I definitely broke the cycle.

ACKNOWLEDGMENTS

First, I want to share that this doctorate adventure has transformed me as woman, a partner, a mother, and a friend. Before beginning my dissertation journey, I had not been aware of the levels of personal transformation that were possible, nor did I know how surviving this kind of transformation could improve my relationship with others. This journey has been epic.

The success of this journey was made possible by many, but in a great part due to a few. I'd like to thank my committee members, Drs. Robert (Bob) Donmoyer, Lea Hubbard, and Kathryn Bingham. Bob was my committee chair and one of my first professors. I started my Inquiry and Research course with Bob pondering, "Who the heck is Habermas?" By the end, I had a completed literature review that served as the foundation of this dissertation. Lea was instrumental in sharpening my research skills in advanced qualitative research. She taught me how to live in the moment of the interview, looking for opportunities to go deeper. She animated the qualitative process of translating an interview into a data set that could be coded and analyzed so that the findings became just as powerful, if not more so, than findings generated using a quantitative approach. Kathryn was my mentor in my leadership coaching courses and was the perfect addition to my committee. I strongly desired having someone with a business and technology background on my committee, and Kathryn checked all those boxes. I am appreciative of her serving on my committee long distance and keeping me on-task, checking in when I went radio silent.

I also couldn't have gotten through all this without the comradery of my cohort and of other doctoral students I met throughout my time at the University of San Diego.

Specifically, I want to thank Ebtesam Alteneiji for being my writing partner and support line. Her positivity and support helped me through not only phases where I was sure “I can’t do this!” and periods of self-pity but also self-care. I truly enjoyed those times when we met to study but ended up doing work avoidance.

You prepare in detail for your study, but in reality, there is no perfect preparation. I am grateful to have had support. I’d like to thank two of my friends currently employed in high tech, Maggie Lowe and Paul Ferraro, who were instrumental in helping me source the majority of my sample when my so perfectly prepared sampling approach failed me. And I’d like to thank my friend and editor, Susan Hueck, whose organizational skills and command of all things APA have made this paper well developed and easier to read.

And from my heart, I want to thank my family. Many times, I was an absent spouse/parent. To my husband, Jeff, who taught me the power of vulnerability and unconditional love. I am thankful for your encouragement to stop running my life on autopilot and to reflect on my needs. To my children, Madeline and Julian, who are my greatest accomplishments, thank you for your patience and understanding. You both really stepped up at home. I’m both elated and bummed to see this chapter end.

PREFACE

Growing up, I was told that with hard work and dedication, I could be anything I wanted to be, and, even though I was a girl, I could grow up to be the president of the United States. With this belief firmly planted in my head, I embraced hard work with vigor in everything I did, assuming the rewards and opportunities would follow.

In high school, I encountered my first computer and learned about the role technology played in sending Neil Armstrong and Buzz Aldrin to the moon and back. I was told about the Apollo Guidance Computer that provided information in real time about the spacecraft as it traveled through space and how the computer provided a safer, more reliable control mechanism to support the mission end to end. It was awe at first sight, and I fell in love with the potential that computer technology had. I firmly believed that computers and technology were going to be a significant influence on what the future would become, and I wanted to be part of that future. I decided that I'd pursue a degree in computer science.

Although I graduated with a computer science degree magna cum laude, I was very aware of the year-over-year dwindling of female representation within my class. I didn't fully understand it, but I had personally experienced situations that made me question if women were really accepted or wanted in the field; I also questioned my own abilities, in part because I was the subject of rumors perpetuated by individuals who furtively suggested that my grades were more a function of my relationship with a male instructor than of my actual knowledge.

Fast forward to postgraduation and an internship position at an up-and-coming company in the telecommunications industry in Southern California. Clearly, hard work

had paid off, and I had realized my first reward. I entered the company determined to make the internship a permanent position and to rise within the leadership ranks.

I enjoyed my own leadership journey of more than 25 years in what today is considered a high-tech industry. The high-tech sector is a subset of industries that use technology and innovation to revolutionize the global marketplace in ways that change how individuals communicate, access services and products, and solve critical problems. High-tech employs a large number of science, technology, engineering, and mathematics (STEM) professionals. As one of the few STEM females on the job, at first, I felt honored to be called “one of the guys,” sensing that it meant I had earned my position through valid, hard work versus some other obscure, shady way. Yet, after a promotion early in my career, a male coworker “jokingly” told everyone that I must have slept with someone to get promoted. It was a just joke, and, since I was one of the guys, I could take a joke, right?

I was elated to be selected to transition from being a technical engineer to managing technical engineers. In this managerial role, I found my calling. Thinking about how I could further support the company and its future, I pursued a master’s degree in business to balance my technical background with operational business needs, and, in my opinion, to make me a stronger leader.

As my accomplishments built up, I expected that the rewards would follow. Yet, throughout my successes, I noticed my career ascension into executive leadership seemed quite slow compared to my male peers while, in many cases, my work output seemed substantially more. I began to realize I wasn’t really one of the guys. Although I ultimately acquired an executive-level position of director within the company, my

journey was laden with challenges, pushback, and toxicity that seem to suggest I wasn't the problem but rather that it was my gender that wasn't suited for leadership.

My exit from corporate life was under hostile conditions, and I felt the rules were favored towards men. I experienced an overwhelming feeling of powerlessness. I had no control or agency over my own career. That sense of powerlessness was oppressive and stifling. My immediate impulse was to find another executive level position at another reputable company; however, my husband asked me to take some time to reflect on what my next steps should be. What did I really want to do with the rest of my life?

That time of self-reflection brought me to this doctoral journey. My ardent interest in this study was at first a function of anger, frustration, and a need for some semblance of control. I thought the journey would bring answers; however, I found it brought even more questions. Throughout this program, the marriage of leadership theory, gender theory, scientific exploration, and human development transformed me. My anger faded into a thirst for discovery. And this dissertation is a major part of that discovery effort.

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CHAPTER ONE

INTRODUCTION

Women seeking to advance into senior leadership roles within corporate America have at one time or another heard the term “glass-ceiling.” The glass-ceiling trope describes an invisible, and seemingly unbreakable, barrier in the workplace preventing the career ascension for women and minorities into the highest levels of their profession (U.S. Glass Ceiling Commission, 1995). Specifically, despite their qualifications and achievements, women encounter barriers excluding them from climbing the corporate ranks to higher levels of authority, power, and higher earning potential. Nowhere is this seen more pervasively than in the high-tech industry.

Background of the Study

Women and the Workplace: An Historical Snapshot

Although World War I brought an influx of women to the workforce (Joiner & Welner, 1942), prior to the beginning of World War II in 1939, women were discouraged and sometimes forbidden from working as paid employees (Reno & Grad, 1985). The onset of World War II again led to an increase of women joining the workforce in many countries including the United States. This increase was in response to a growing labor demand for wartime production jobs and the resulting widespread job vacancies as men left for war (Reno & Grad, 1985). Surveys performed by the Bureau of Employment on war production plants in California employing a significant number of women during the war suggested that businesses also realized a positive impact of women joining the workforce (Joiner & Welner, 1942). Published in the Social Security Bulletin in July of

1942, survey findings indicated that in all plants visited, supervisors noted not only satisfaction with female employment but also that production increased and cost per unit decreased, appreciably (Joiner & Welner, 1942). Furthermore, survey results indicated that compared to men, women required less administrative oversight and could transfer between different departments with ease while the plants overall experienced decreased labor turn-over, a substantial reduction in accidents, and less damage to tools and materials (Joiner & Weiner, 1942).

Between 1960 and 1980, there was a rapid influx of women joining the workforce; by 1990, that pace began to slow, peaking at 60% workforce participation in 1999 (U. S. Department of Labor, Bureau of Labor Statistics [BLS], 2017). Although women were becoming more prevalent in the workplace, they often were paid less than men for similar work and had limited access to the job pool. The Equal Pay Act of 1963, signed into law by President John F. Kennedy, along with the Civil Rights Act of 1964, signed into law by President Lyndon B. Johnson, made gender discrimination in employing and compensating women illegal (Simmons, 2000). The passage of these acts created a legally supported framework for women to enter the job market on equal footing. Many advocates of the legislation believed that time and subsequent experience in the workforce would allow women to rise through the ranks of business in America (Hoobler et al., 2011). More than 50 years after the passage of these acts, women are still noticeably missing from leadership positions, and the term glass ceiling continues to be a prevalent term describing the fact that women have not risen to the top of the organizations employing them (Eagly & Carli, 2007; Hoobler et al., 2011).

The Glass Ceiling

Emergence of the term. The term glass ceiling has been around for decades; however, its origin is somewhat vague. In an article he wrote for the Wall Street Journal, Zimmer (2015) noted that some attribute the source of the term glass ceiling to Katherine Lawrence, who, in 1979, said to a female colleague at Hewlett-Packard, ““They [i.e., women] hit this ceiling. This ceiling is invisible—a glass ceiling”” (as cited in Zimmer, 2015, para. 6). Others cite a 1984 Adweek article in which Nora Frenkiel profiled Gay Bryant, the former editor at Working Woman magazine who had just become the first female editor for Family Circle magazine (Zimmer, 2015). Explaining her career move, Bryant shared her motivation: ““Women have reached a certain point—I call it the glass ceiling. They’re in the top of middle management and they’re stopping and getting stuck. There isn’t enough room for all those women at the top”” (Frenkiel, 1984, p. 2). The term was popularized 2 years later in a Wall Street Journal article (Eagly & Carli, 2007; Zimmer, 2015). The authors of the article, Hymowitz and Schellhardt (1986) wrote, ““Even those few women who rose steadily through the ranks eventually crashed into an invisible barrier. The executive suite seemed within their grasp, but they just couldn’t break through the glass ceiling”” (p. 61).

Creating barriers. The glass-ceiling phenomenon that exists for women is gendered; although there is a race penalty for men, racial inequalities among men do not follow the same glass-ceiling pattern as is observed for women (Cotter et al., 2001). Additionally, gender disadvantages not only have a seemingly invisible, artificial barrier but also are evidenced by an increase in inequality as a woman rises through the ranks (Cotter et al., 2001). In other words, as women advance, they are disadvantaged for

promotions, and title and earnings gaps appear; these conditions are accelerated with inequality increasing over the course of a woman's career. Discriminatory organizational policies and organizational culture bias have been cited as predominant reasons for the limiting of women's and minorities' opportunities for upward mobility (U. S. Glass Ceiling Commission, 1995).

A metaphor for change. Regardless of its origins, the concept of the glass ceiling has been a powerful metaphor for change. Not only did it prompt the passage of the Glass Ceiling Act as Title II of the Civil Rights Act of 1991 but also, in the same year, the creation of the federally funded Glass Ceiling Commission to investigate barriers to organizational advancement and to make recommendations for promoting equal opportunities for women and minorities (U. S. Glass Ceiling Commission, 1995). Since these initial efforts, incremental progress for women has been observed in the workforce as they have moved into positions to which they had previously been denied access.

Realistically, before 1980, the idea of a woman joining, much less ascending, the ranks of management were unheard of, yet today women make up over 50% of professional and managerial roles in the workplace (BLS, 2017) and hold 21.2% of Standards & Poor 500 board positions (Catalyst, 2019c). Data from Papadopoulos (2019) suggest the number of women who hold board positions is higher at 27%.

Although the wage gap began to decline in the mid-60s when women earned approximately 60% of men's median annual salary for full-time workers, rates began to stall in the early 2000s (Blau & Khan, 2007, 2016; BLS, 2016). In 2014, women earned approximately 80% of men's median annual salary for full-time workers, a 20% increase from the 1960s wages (BLS, 2016). In addition, the educational attainment of working

women has risen consistently in the last half century growing from 11% of working women holding a bachelor's degree or higher in 1970 to 42% of working women holding a bachelor's degree or higher in 2016 (BLS, 2017), a factor that may have contributed to decreases in wage gaps and in increases in promotions among women in the workforce (Blau & Khan, 2016). The mere presence of more women in top leadership positions plays also has been found to play a role in closing the wage gap between women and men (e.g., Perryman et al., 2016).

Stalled progress. Despite the positive changes over the years, inconsistency in advancement opportunities for women in the workplace remains. Globally, only 18.1% of public and private board seats are occupied by women with the highest percentages being the United Kingdom (22.8%) and Canada (20.8%) and the lowest being the Latin America (5.6%) and the Middle East 1% (Goryunova et al., 2017). Additionally, women chief executive officers (CEOs) make up only 5.2% of the S&P 500's major corporations world-wide (Catalyst, 2019c), a percentage that has changed minutely over the last 25 years (Catalyst, 2019a) and little since 2014 (Catalyst, 2019a; McKinsey & Company, & Lean In, 2019). A similar situation is evident in high tech.

Women in the Workplace: High-Tech Industry

Defining high tech. High tech is not a formally recognized industry; however, high tech is a well-known concept that is pervasive in business and economics. When referring to the high-tech industry, one is recognizing the transformational effect of technological innovation on a traditional industry (e.g., telecommunications, semiconductors, biotechnology) whereby those technological innovations significantly change the rulebook on how global societies gain access to and communicate

information, produce and distribute goods and services, and engage in problem solving (U.S. Equal Employment Opportunity Commission [EEOC], 2016). Characteristics of a high-tech industry include (a) dynamic and innovative technological advances propelling economic growth; (b) a highly sought after and highly skilled workforce, usually in STEM-related fields; (c) generous pay and benefits packages; and (d) a workforce pervasively dominated by men (EEOC, 2016).

Women in high tech. In the high-tech sector, 64% of employees are men, 68.5% of which are White; Blacks and Hispanics represent 7.4% and 8%, respectively (EEOC, 2016). At the executive level, 80% are men compared to 20% women (EEOC, 2016). People of color have miniscule representation in high tech (EEOC, 2016). In fact, women of color are severely disadvantaged in all male-dominated industries. At the highest levels of organizations with fewer than 100 employees, presumably levels beyond the glass ceiling, self-reported data indicate that Black women account for 1.6% of the workforce, and Hispanic women are completely absent (Simard et al., 2018). In Silicon Valley, home to some of the largest and most innovative tech companies, women of color make up less than 1% of the high-tech workforce (Scott et al., 2018).

Additionally, U. S. Census Bureau and U.S. Department of Labor data on STEM occupations in computers and mathematics show that after peaking at 35% participation in 1990, women's participation dropped to 26% by 2013, 1% lower than in 1960 (Corbett & Hill, 2015). The absence of women in tech roles is also glaringly notable today in well-known, high-tech companies. Women in high-tech roles make up 17% of Google's workforce, compared to a total of 30% of women employed; Facebook employs women

in 15% of its tech roles, and Twitter employs women in 10% of its tech roles compared to an equitable gender split in nontechnical roles (EEOC, 2016).

Breaking the glass ceiling. There is an ongoing high demand for high-tech workers—more than twice the national average of workers across all industries—suggesting the high-tech industry will be a central force in shaping the future globally (EEOC, 2016). However, as evidenced by the lack of diversity in high-tech roles and leadership positions, upward mobility barriers in high-tech industries appear to be pronounced. To ensure the future is not defined from a narrow perspective and that diverse needs are represented and incorporated, it is critical that the glass ceiling phenomenon be more closely examined.

Statement of the Problem

Social constructivist and feminist theories of gender stereotypes, social/gender roles, and role congruity expectations (e.g., Eagly 1987; Eagly & Carli, 2007; Eagly & Steffen, 1984; Schein, 1973, 1975; Scott & Brown, 2006) have been used to account for the glass-ceiling phenomenon (see Chapter 2). Additionally, various researchers have pointed to gender differences in professional experience and educational attainment to explain the inequity (e.g., Becker, 1985; Blau & Khan, 2000, 2007; see Chapter 2). However, these explanations seem somewhat limited and inconclusive given that the literature is filled with research documenting the proliferation of women entering into the workplace (e.g., LeanIn.Org & McKinsey and Company, 2018), their remarkable progress in attaining higher education (e.g., NCES, 2017), their overrepresentation in professional and management roles (e.g., BLS, 2017), and their placement in CEO leadership positions in high profile, S&P 500 global companies; the list includes Safra

Catz (Oracle), Marilyn Hewson (Lockheed Martin), and Virginia Rometty (IBM; Catalyst, 2019b).

Therefore, despite the work that has been done and the many explanations that have been advanced, the reasons for women's underrepresentation in leadership roles are not fully understood. The literature provides at best a partial explanation of women's lack of higher leadership progression. Of greater import, however, is the lack of understanding of how some women have advanced professionally and, consequently, successfully challenged the glass-ceiling concept. This study is significant because it addresses these gaps in the literature.

Significance of the Problem

Gender inequality in the workplace is concerning not only from a social justice perspective, but also from the perspective of a company's positionality and reputation (Carter & Wagner, 2011; Goryunova et al., 2017; Khan & Vieito, 2013; Noland et al. 2016). For example, gender diversity in the workplace reduces employee turnover (Ali et al., 2015) and improves team performance (Shoreibah et al., 2019) and innovations targeted at female end users by up to 158% (Hewlett et al., 2013). Lack of gender diversity in the workplace is associated with greater chances of gender harassment (Kabat-Farr & Cortina, 2014), the implication of which is that the increased representation of women in the workplace could decrease incidents of gender harassment.

Gender diversity in leadership in particular has financial and other consequences for firms. An overview of gender diversity outcomes evident in current research is provided in Table 1.

Table 1*Gender Diversity Outcomes in the Literature*

Gender diversity outcome	Literature source	
	Increases / improves	Decreases
Financial performance		
Overall financial performance	Hoobler et al. (2016)	
Sales performance	Dawson et al. (2016); Hoobler, et al. (2016); Taljaard et al. (2015)	
Profitability	Hunt et al. (2018); Lorenzo et al. (2017); Noland et al. (2016); Post & Byron (2015); Thomas et al. (2016)	
Revenue	Lorenzo et al. (2017); Noland et al. (2016); Thomas et al. (2016)	
Return on investment	Dawson et al. (2016); Gompers & Kovvali (2018)	
Return on assets	Dawson et al. (2016); Dezsö & Ross (2012); Liu et al. (2014); Perryman et al. (2016)	
Return on equity	Dawson et al. (2016); Eastman, Rallis, & Mazzuchelli (2016); Eastman & Seretis (2018); Reinert et al. (2016)	
Earnings per share	Eastman et al. (2016); Eastman & Seretis (2018)	
Share price performance	Taljaard et al. (2015)	
Percentage increase in stock price	Perryman et al. (2016)	
Market value	Thomas et al. (2016)	
Board performance	Katmon et al. (2016)	
Employee productivity	Eastman & Seretis (2018)	
Responsibility		
Corporate social responsibility	Harjoto et al. (2015); Katmon et al. (2016)	
Attention to legal responsibilities	Post & Byron (2015)	

Gender diversity outcome	Literature source	
	Increases / improves	Decreases
Responsibility		
Reporting accuracy	Gul et al. (2011); Wahid (2018)	
Wage gap		Perryman et al. (2016)
Governance		
Monitoring and strategy involvement	Post & Byron (2015)	
Agency problems		Taljaard et al. (2015)
Risk		
Overall firm risk		Khan & Vieto (2013); Perryman et al. (2016)
Risk management associated with research and development investments	Chen et al. (2016)	
Fraud		Cummings et al. (2015); Lee et al. (2015)
Corporate attributes		
Capacity for innovation	Lorenzo et al. (2017)	
Reputability	Weber Shandwick (2016)	

The glass ceiling may be invisible, but it appears to be a real, unbreakable barrier that few women can overcome. Given that businesses benefit from gender equality in general and from gender diversity in leadership specifically, it seems obvious that the glass ceiling phenomenon needs to be better understood. Given the associated social justice aspects of the phenomenon, it is imperative that we understand factors contributing to the glass-ceiling phenomenon in a more holistic way.

Purpose of the Study

The purpose of this study is to fill a gap in the literature regarding the reasons women are underrepresented in leadership roles and the ways some women have successfully challenged the glass-ceiling concept. Insight about how the glass ceiling operates in women's lives was generated through the exploration of both men's and women's leadership journeys—those journeys that stagnate at the boundary of the glass ceiling as well as those journeys that push through the glass ceiling to the executive level—and through men's and women's perceived influence of company culture and their stated or implied diversity and inclusion policies on the leadership ascension of men and women who work in high-tech.

Although the glass ceiling exists across multiple sectors, the focus of this study was the high-tech industry because it is an area where women are significantly underrepresented at all levels and where women of color are virtually non-existent. As a ramification of the high-tech industry's racial and ethnic demographics, all participants in this study were White.

Research Questions

The following research questions guided this study:

Research Question 1: What factors, if any, do women and men who worked in the high-tech industry perceive contributed to their ascension into top level positions?

Research Question 2: How, if at all, or in what way, if any, do women and men who worked in the high-tech industry perceive gender influences professional advancement?

Research Question 3: How, if at all, do women and men who worked in the high-tech industry perceive that company culture, diversity and inclusion initiatives, programs, or policies influenced their ascension into senior leadership positions?

Research Question 4: What are the greatest challenges, if any, for women and men who aspire to senior leadership positions?

CHAPTER TWO

REVIEW OF THE LITERATURE

Much of the literature on the glass-ceiling phenomenon has shown that women face compensation inequity and invisible barriers to their ascension up the corporate ladder. However, other literature has shown that no wage gap exists. To present an unbiased discussion on the topic, evidence for both arguments is presented in this section. Additionally, I discuss theoretical foundations that contribute to an understanding of the glass ceiling phenomenon.

Sources included in the literature review are primarily research studies published in peer-reviewed journals. Both current and historical perspectives are provided. Searches were conducted using these, and variations of these, key terms and phrases: *glass ceiling*, *high tech*, *gender inequity*, *pay gap*, *gender compensation inequity*, *gender access inequity*, and *women in leadership*.

Compensation and Access Equity

Lower levels of initial experience, lower initial ranking, and less career experience have been cited as factors creating a pipeline deficit excluding women from higher paying and higher-ranking jobs (Gayle et al., 2012), ultimately contributing to the glass ceiling. However, although discrimination in the form of firm size segregation, occupational sex segregation, and inequity in role promotion may account for about 5% of compensation inequity, women's ages and lower levels of seniority account for 20% of the variance in compensation inequity between genders (Bertrand & Hallock, 2001). Additionally, when other variables are considered, the data have shown there is little or no compensation and access inequity (Furchtgott-Roth, 2016).

One variable that may influence pay equity is job level. Using a data set (1992-1997) of the five highest-paid executives in large companies across the nation, Bertrand and Hallock (2001) found that although women earned 45% less than men, the women managed smaller companies and were less likely to be in the highest executive positions, conditions the researchers said explained 75% of the variance in pay between the genders. Gayle et al. (2012) also found that women typically earn less during their careers and are less likely to reach the executive manager level. However, when Gayle et al. controlled for executive rank and background, women actually were found to earn more than men and to be promoted more quickly than men. Hill et al. (2015) found similar results among female executives as a minority group. Gayle et al. claimed that women are more likely than men to become chief executives officers but that they do not reach that level as often as men because rates of attrition are higher for women when compared to men. When compared to ethnic minorities, however, Hill et al. (2015) suggested that female CEOs are less likely to exit their positions. A variety of other variables may contribute to female CEOs' decision to exit their positions (Hill et al., 2015).

In addition to job level and attrition, gender value may contribute to compensation equity. From a strategic human resource management perspective, Leslie et al. (2017) theorized that organizational diversity policies have created a scenario in which the gender pay gap is reversed, a claim they supported with two field studies and two laboratory experiments. The findings showed women who are perceived to have the capacity to succeed in upper levels of organizations are perceived as more valuable than men because those women contribute to diversity goals (Leslie et al. 2017). As such, there is shorter supply and greater demand for women at the executive level; this

condition promotes a perceived premium for female executives who are subsequently rewarded with higher pay when compared to their male counterparts (Leslie et al., 2017). Hill et al. (2015) spoke of this compensation premium for female (minority) executives, in particular CEOs, not only in terms of value but also rarity and inimitability.

Despite this evidence, strong arguments have been made about compensation and access inequity. These arguments, presented in the following section, primarily are focused on personal choice and gaps in education and experience between men and women.

Compensation and Access Inequity

As women increasingly have entered the workplace since the 1960s, the literature has sided strongly with the perception that women have been compensated less than men and have not had equal access to the job market (Blau & Khan, 2000, 2007, 2016). The most common rationales for this inequity are self-selection and gaps in education and in experience.

Self-Selection

The difference in pay has been attributed to occupational segregation of the sexes, including women's focus on household responsibilities, and the assumption that women self-select into service-based fields while men concentrate in higher wage industries (Becker, 1985; Treiman & Hartman, 1981; Treiman & Terrell, 1975).

In response to increasing interest in the status of women and their career choice, Treiman and Terrell (1975) sought to test liberation activists' claims that women were systemically discriminated against preventing their equal participation and equal access to opportunities in the workplace. Using a measure of occupational prestige, which ranks

the social status of an occupation, or rather, its worthiness and desirability, results showed no statistical difference between men and women's occupational prestige values (Treiman & Terrell, 1975). The researchers subsequently rejected systemic discrimination in support of a natural division of labor. In other words, given that the occupational prestige score of an English teacher, a predominantly female occupation, was 73.51 and that the occupational prestige score of a chief executive, a predominantly male occupation, was 70.45 proved that women were not being discriminated against as each occupation was highly valued. Further, Treiman and Terrell suggested women were not being held back from higher paying jobs, instead, they were self-selecting into lower paying, less stressful jobs in order to enjoy the convenience and flexibility needed to handle household and family responsibilities. As a result, employers were justified paying women less for the trade-off of convenience (Treiman & Terrell, 1975).

Treiman and Terrell's (1975) rationalization for paying women less than men is problematic for several reasons. First, Treiman and Terrell found that unmarried women were paid more than married women. However, they failed to explain why married and unmarried women had similar occupational prestige values yet different pay.

Second, Treiman and Terrell did not consider that the occupational segregation they identified may have been less self-selection and more systemic exclusion from higher earning wage jobs, a condition, as described by Strober and Landford (1986), that led to the feminization of the teaching profession. Women's pervasive entry into the teaching profession was in part due to the demand for women as employees who commanded a lower salary than their male counterparts (Strober & Lanford, 1986). Men could, and did, leave the teaching profession to pursue higher paying occupations that

were available to them while women stayed in the teaching profession because they had no other options (Strober & Landford, 1986).

Third, the sample data from the 1967 National Longitudinal Surveys of Labor Market Experience of 5,083 women Trieman and Terrell used in their study were restricted to currently employed women, omitting nearly 2,600 previously employed women. The implied assumption in that omission is that active employment was a personal choice for women. However, it is just as possible that the women may have been discouraged, hindered, or excluded in seeking employment. Women, today, have less autonomy and less flexibility in the positions they hold yet at the same time their working conditions are generally more stressful than men, a contradiction that debunks the idea that women are choosing convenience at the expense of higher paying employment opportunities (Miller, 2016).

Education and Experience

Early research suggested parental encouragement to seek higher education prioritized sons over daughters (Sewell & Shah, 1968). Indeed, in 1960, for every woman graduating from a 4-year university, 1.6 men graduated; yet during that same period, trends also reflected women investing more in their professional and educational careers (Francis, 2007). By the 1990s, women were nearing 50% of the workforce (Ragins et al., 1998), and by 2003, there were 1.35 times more women graduating from college than men graduating from college (Francis, 2007).

Despite these trends, Ragins et al.'s (1998) findings from a large-scale survey of Fortune 1000 CEOs showed that 64% of CEOs felt there were not enough executive women in the pipeline; 82% of CEOs felt that void was the result of lack of managerial or

line experience. However, 64% of CEOs also believed that with an increase in women's educational achievement and experience in the workforce, the pipeline would naturally fill and the problem would be eliminated within a decade.

Almost 2 decades later, women have made significant progress in education and workforce participation (experience). Between 2009 and 2010, women earned 57% of all bachelor's degrees, 60% of all master's degrees, and 52% of all doctor's degrees in the United States (U.S. Department of Education, National Center for Education Statistics [NCES], 2017). Recent statistics showed 56.8% of women participate in the workforce and represent 47% of the total labor force (BLS, 2017). Women hold 52% of all managerial and professional positions (BLS, 2017), yet they are still excluded from leadership positions as women make up only 5.2% of Standards and Poor 500 CEO positions and 26.5% of executives and senior leadership (Catalyst, 2019c).

Data showing inequity in women's access to leadership positions despite adequate education and experience support female CEO's claims that gender stereotyping is the number one hindrance in women's career ascension (Ragins et al, 1998). Becker (1985) explained this inequity as sexual division of labor that hinders women's ability to gain experience and puts a premium on work done outside the home. While a woman tends to work more overall, accounting for time spent both in household duties and in the market, the allocation of time is skewed toward household responsibilities (Becker, 1985; Blau & Khan, 2016; Hochschild, 2012). Women's reduced time in the labor force subsequently reduces their value to employers who are discouraged from investing in them in ways that would elevate their levels of education and provide opportunities for experience leading to higher paying and higher profile leadership positions (Becker, 1985; Blau & Khan,

2016; Hochschild, 2012). Hochschild (2012) contended that when women work outside the home and then afterwards are responsible for the work inside the home, they are effectively working a “second shift” and, as such, simply can’t compete with men.

Social Constructivist Theories

Social constructivist theories suggest that the lack of women in leadership positions is driven by the dominant and powerful patriarchal hierarchy consciously and unconsciously constructing an artificial reality of what men and women can do. Gender stereotypes, social role expectations, and role congruence challenges contribute to that artificial reality and play a strong role in preventing women’s access to leadership positions (Eagly & Steffen, 1994). Each of these concepts is discussed separately in this section.

Gender Stereotypes

Researchers have consistently shown that gender stereotypes are socially constructed through an interweaving of descriptive and prescriptive meaning making. Gender stereotypes describe alleged differences between men and women; however, gender stereotypes also prescribe (i.e., provide a socially constructed interpretation of) what men and women should and should not be like (Eagly & Steffen, 1984; Heilman et al., 2004). Applying this concept, one might consider this example: an individual observes a woman holding and cooing a baby and subsequently transforms that observed event into the assumption that the woman is nurturing. In future interactions with women, a descriptive stereotype emerges indicating that all women are naturally nurturing, transforming the stereotype into a prescription: all women should be nurturing.

After conducting an experiment on stereotyping, Condry and Condry (1976) suggested that the mere knowledge of someone's sex triggers stereotypical bias. Participants were told an infant's gender then observed a video of the child's crying reaction to a jack-in-the-box toy; when the study participants were asked why the child was crying, those persons who were told the gender of the baby was a boy described the baby's response as anger (Condry & Condry, 1976). Alternatively, those individuals who were told the sex of the baby was a girl described the baby's response as fear (Condry & Condry, 1976). These findings suggested individuals hold preconceived, or stereotypical, interpretations about a person's responses to stimuli based solely on the knowledge of the person's gender.

Findings from subsequent experiments, however, have challenged this perspective. For example, in a study on infant facial expressions, Haviland (1977) found male infants were twice as likely as female infants to be perceived as fearful versus angry. Soon after, Holman and Wilson (1979) found no significant correlation between infant gender labeling and prescriptive stereotype. A decade later, in a meta-study on gender labeling that included the findings reported by Condry and Condry, and Haviland et al. just discussed, Stern and Karracker (1989) concluded that previous knowledge of an infant's gender was not a consistent or reliable determinate of gender stereotypes.

Findings that do not support the innate gender-stereotype connection suggest that gender alone does not trigger preconceived stereotypes, at least in infants whose sex is indistinguishable visually. This argument is supported, in some part, by studies on gender stereotypes within the family context. In less recent work on the topic, Brim (1958) and McHale et al. (1998) found that older siblings, as well as peers, have a significant effect

on the development of gender stereotypes in younger siblings. Later, Endendijk et al. (2013) found similar results. Because the development of gender stereotypes did not occur until later in life, Endendijk suggested that gender stereotyping is dependent on visual cues such as manner of dress, appearance, and behavior.

Gender stereotyping has negative outcomes for women in leadership roles. For example, in exploratory studies conducted by Catalyst (2005), women leaders in business consistently have reported gender stereotypes as the main barrier in obtaining top positions. These findings are not surprising given that gender stereotyping creates the perception women are unfit to serve in leadership roles (Eagly & Karau, 2002; Lyness & Heilman, 2006) because they are perceived to be distracted by family commitments (e.g., child or adult care giving) and are emotionally irrational, a condition associated with lack of full commitment and ability to execute workplace responsibilities (Hoobler et al., 2011).

As a result, gender stereotypes contribute to the glass ceiling phenomenon because they create the perception that women, despite having real qualifications, are undesirable candidates for senior leadership positions (Prime et al., 2009). To overcome these perceptions, female leaders must continually decide not only how much emotion to display but what type of emotion to display (Brescoll, 2016). This navigation process is complicated by the fact that women are penalized not only for moderate displays of emotion, but for lack of emotion as well (Brescoll, 2016). Specifically, women are penalized for expressing emotions that convey dominance, even though that trait is typically associated with men; at the same time, women are penalized for being

unexpressive because that lack of emotion suggests they are failing to fulfill their role as a nurturing woman (Brescoll, 2016).

The research and theory on gender stereotyping suggest that women face challenges in leadership that their male counterparts do not. Because stereotypes are closely associated with social roles (Koenig & Eagly, 2014), an understanding of social roles theory can help elucidate the challenge for women in leadership roles.

Social Roles

Social roles theory suggests society places expectations on an individual's behavior based entirely on their biological sex of male or female (Dulin, 2007; Wood & Eagly, 2002). More specifically, men and women are cast into social roles based on their traditional responsibilities and the physical division of labor between men as providers and woman as caregivers (Eagly, 1987). As women and men are observed operating within these roles, a societally shared expectation about how men and women should behave forms (Eagly, 1987), triggering gender norms derived from descriptive stereotypes (Eagly & Steffen, 1984). It is through this process that social expectations, in which men and women are characterized into social roles, lead to gender stereotypes (Eagly, 1987; Eagly & Steffen, 1984).

The physical differences between men and women, that is males' strength and size and females' childbirth and lactation ability, lead men and women to participate in specific activities accommodating and optimizing their physical differences (Wood & Eagly, 2002). For example, men's physical strength is optimal for war and/or working the fields, while women's biological makeup is optimized for reproduction and care for the home and children (Eagly & Wood, 1999; Wood & Eagly, 2002). This division of the

sexes subsequently imposes both opportunities and constraints for men and women creating a social roadmap for sex-appropriate behavior in all aspects of life (Dulin, 2007, Eagly & Karau, 2002; Wood & Eagly, 2002). This optimization of roles naturally cast men in high-status leadership roles within the public sphere (e.g., politics, business, military) while casting women in the lower status role of caregiver in the home; Wood & Eagly, 2002). As men held positions of power outside the home, leadership became associated with agentic, male traits such as aggressiveness, directness, independence, confrontation, and decisiveness, while women, in the role of caregiver, were perceived as communal and thus characteristically nurturing, caring, and collaborative (Eagly et al., 1992; Eagly & Steffen, 1984). Additionally, in their domestic roles, women were mostly hidden from public view; as such, their opportunities to demonstrate leadership qualities and develop the relationships necessary to hold high-status positions were limited (Wood & Eagly, 2002).

The implication for women seeking higher-status positions (i.e., leadership roles) is that social pressures to conform to sex-based expectations create obstacles for them. However, using only this lens is limiting because it inherently ignores the clear evidence of social change regarding gender equality apparent in industrialized nations (Eagly & Wood, 2012) and the role of social policy or institutionalized patriarchy in the limiting of women in leadership roles. Indeed, Dulin (2007) noted that today's cultural climate embraces inclusion and diversity in all aspects of the workplace, which perhaps, she noted, makes social roles theory less relevant. Also, social roles theory assumes gendered occupational segregation; however, today, women have gained entry in nearly all of work industries, including those that are male dominated. Furthermore, social roles theory

assumes women lack agency to overcome gendered obstacles, yet, while slow, women are, indeed, breaking through to higher-status roles. Finally, social roles research is narrowly focused. As Eagly and Wood (2013) have admitted, social roles theory relies heavily upon quantitative measures, which are insufficient for understanding the complexities of gender inequality. As Schneider and Bos (2019) have argued, social roles theory omits multiple potential factors of gender equality beyond the male-female binary.

Role Congruity

Role congruity theory builds on the concept of social roles theory to explain challenges women face in gaining access to and retaining leadership roles (Eagly & Karau, 2002). It is a theory of prejudice where women are perceived as less capable of fulfilling leadership positions and where behaviors associated with leadership positions are perceived as less favorable when women are fulfilling those positions (Eagly & Karau, 2002). These prejudices against women stem from perceived gender roles (Eagly & Karau, 2002). Women are perceived to be more empathetic, expressive, caring, and nurturing, and men are perceived to “be more aggressive, assertive . . . dominant, and less easily influenced than women” (Eagly, 1987, p. 27). It appears these dueling trait expectations create a tension for women that men do not experience; it is an ongoing struggle of balancing being a good enough woman with being a good enough leader—a conflict seemingly impervious to resolution because of the underlying suggestion that a woman is incapable of excelling at both. Subsequently, when compared to women, men are expected to be more agentic (i.e., controlling and independent), and when compared to men, women are expected to be more communal and concerned for other people’s well-being (Eagly, 1987).

Perceptions of women in leadership roles. Because leadership historically has been regarded as a role requiring agentic traits, it has long been perceived as a masculine role (Eagly, 1987; Eagly & Steffen, 1984). Thus, when a man assumes a leadership position, society's expectation of his gender role is in complete alignment with the social expectations of the leadership role (Eagly & Karau, 2002). In contrast, a woman's prescribed gender role is in direct conflict with the expectations of the leader role; this dichotomy between the expectations of gender role and leader role creates a double bind in which society does not allow a woman to be successful in both roles simultaneously (Davidson & Burke, 2000; Eagly & Karau, 2002; Koch et al., 2015; Lyness & Heilman, 2006; Sczesny, 2003).

When a woman personifies leadership role expectations, people develop an overall negative perception of her (Eagly & Johannesen-Schmidt, 2001). When a woman conforms to gender role expectations, she is perceived as less favorable for a leadership position (Gervais & Hillard, 2011; Heilman et al., 2004) and her chances of becoming a viable or desired candidate for leadership roles is diminished (Eagly & Karau, 2002). Even when women do secure initial positions in leadership, they are likely to continue to experience obstacles that hinder further ascension and success (Eagly & Karau, 2002) and potentially need to use communication as a means of tempering their agency (Schock et al., 2019).

Schneider et al. (2010) and Gervais and Hillard (2011) applied these tenets of role congruity theory to the experiences of Hillary Clinton and Sarah Palin during the 2008 election; both women were targets of gendered attacks that exemplified the gender role versus leadership role double bind. Clinton, whose political experience in a leadership

capacity was significant, endured attacks on her femininity, or lack thereof (Gervais & Hillard, 2011). Schneider et al. gave numerous but poignant examples of the attacks on Clinton:

In the window of a Kentucky Fried Chicken (KFC) restaurant was the announcement of the “Hillary Special” which consisted of “2 fat thighs with 2 small breasts and a left wing.” In another poster, there is a picture of a witch flying on her broom with the words “Cackle Cackle” at the top and “Hillary Rotten Clinton” at the bottom. In a third, Obama and Clinton are pictured side-by-side. Beneath them reads “Bros before Hoes.” Another poster asks the question, “What is Hillary?” Beneath the question is a square box with . . . letters across the square, “C.U.N.T.” Beneath the box is Citizens United Not Timid. A banner at the top of a distasteful picture of Clinton reads “Life’s a Bitch,” and below it, “Don’t Elect One!” (p. 364)

Palin, who also had extensive political leadership experience as governor of Alaska and who was the first female Vice President nomination for the Republican party, visually presented as more feminine (Gervais & Hillard, 2011). Unlike Clinton who was attacked for her lack of femininity, Palin found herself faced with criticism of her political experience and leadership capabilities (Gervais & Hillard, 2011). Additionally, the media was focused on her looks and wardrobe expenses (Schneider et al., 2010). She was nicknamed “Caribou Barbie” and buttons read “Save a Moose, Shoot a Beaver” (Schneider et al., 2010, p. 365). The media accused Palin of being a helpless hockey mom full of “BS” (i.e., bull shit); and “*The New York Post* titled an online article ‘Got Milf,’ using the vulgar acronym to describe Palin” (Schneider et al., 2010, p. 366). Gervais and

Hillard's (2011) study findings mirrored perceptions expressed in the media where Clinton, portraying prototypical agentic traits in her leader role, was perceived to be contravening social expectations of her gender role, and Palin, who met social expectations of her gender role, was perceived as an incompetent leader despite her leadership experience.

Manifestations of incongruence. The incongruence of the leader versus gender role can manifest itself in negative performance reviews whereas women leaders who engage in prototypical leader behaviors are cast as hostile and more confrontational than their male counterparts; as a result, those women are labeled as performance problems (Eagly & Karau, 2002; Heilman et al., 2004; Lyness & Heilman, 2006). In fact, studies have suggested bias favoring men over equally qualified women is endemic in performance evaluations (Castilla & Benard, 2010; Elvira & Graham, 2002; Perez, 2019).

In one study, controlling for job title, supervisor, and performance evaluation scores, Castilla and Benard (2010) found both female and male managers in companies valuing meritocracy recommended larger performance bonuses to men over equally qualified women, suggesting the influence of social norms is pervasive even when a manager espouses merit-based values. In another study, inspired by a conversation with an engineering manager lamenting over whether to promote his talented, yet overly abrasive, female employee or her peer, an easy going yet impatient male, Snyder (2014) sought to understand if reviewee's gender was correlated to performance review tone and content in the technology industry. Snyder (2014) evaluated 286 reviews submitted by 180 individuals of which 58% were male and 42% were female. He found that although women and men both received constructive feedback, women also received negative

character criticism regardless of the reviewing manager's gender. Additionally, terms including *abrasive*, *aggressive*, *bossy*, and *irrational* were used to describe off-putting behaviors of the women; however, of all the terms used to describe women, only the term *aggressive* appeared on men's reviews and almost exclusively as a behavior to employ more often (Snyder, 2014).

Limitations of Social Constructivist Theories

Although social constructivist theories appear to be grounded in solid research and seem reasonable explanations to much of the challenges women face in career ascension, these theories offer no explanation for why some women are able to make it to higher status positions while others, who seemingly should, do not. Additionally, role congruity theory provides an interesting perspective on the challenges women face balancing gender with leadership; however, the theory does not explain why some women are successful at balancing these roles while others are not. It is possible that the gender-based problems women face may be more a reflection of the decision maker's conscious or unconscious bias against them for role incongruence than a reflection of their genuine performance in the leader role (Castilla & Benard, 2010; Eagly & Karau, 2002). In any case, these situations hinder women's opportunities for upward mobility and exacerbate the glass-ceiling effect. Research shows that counter-stereotypic gender role models can decrease the application of biased gender stereotypes in leadership evaluation and selection and hold potential for overcoming heuristic judgments equating prototypicality and good leadership (Leicht et al., 2014).

Diversity and Inclusion

The terms *diversity* and *inclusion* are not new in corporate culture (Roberson, 2004; Smith & Turner, 2015). However, diversity (Dobbin & Kalev, 2016) and inclusion (McCormick, 2007) are often ill-defined, are not clearly defined, or are not discussed as concepts distinct from one another. Therefore, before discussing particulars of diversity and inclusion as they apply in the business setting, a discussion of how the terms are interpreted is warranted.

Defining Diversity and Inclusion

The 1960s demonstrations and subsequent affirmative action and civil rights legislation drew attention to the idea of diversity and spawned the emergence of diversity education focused on gender and racial sensitivity training (McCormick, 2007; Vaughn, 2007). Because diversity initiatives also sought to address inequalities in the workplace, diversity initiatives were many times confused with formal employment legislation such as affirmative action; however, these entities are distinctly different (Corbett & Hill, 2015; McCormick, 2007). Affirmative action is compulsory legislation designed to promote equitable gender and racial compositions (expanded later to include other protected classes related to religion and age) in the workplace by preventing discrimination during the hiring process (McCormick, 2007).

In contrast to compulsory legislation, in organizational literature, diversity emerged as a concept of demographic heterogeneity associated with workforce composition (Roberson, 2006). In literature based on the assumption that demographically diverse workers were included through the natural hiring process, little attention was given to inclusion as a distinct construct; thus, the varying dimensions of

the two constructs often have been intertwined (Roberson, 2006). However, in literature that recognized inclusion does not necessarily occur naturally in organizational systems, inclusion has been focused on worker integration and the recognition of workers as empowered and essential organizational components with inherent economic value (Roberson, 2006).

In addition to differences indicated in organizational perspectives, differences between diversity and inclusion have been noted based on generational perspectives. In this regard, diversity and inclusion can be considered dynamic constructs (Smith & Turner, 2015). In their study of 3,726 baby boomers (born 1946-1963; 27%), Generation X-ers (born 1964-1979; 47%), and millennials (26%), Smith and Turner (2015) found that “Generation X and baby boomer generations most commonly define diversity as representation of and fairness to all individuals and their various identifiers of gender, race, religion, ethnicity, and sexual orientation” (p. 7). The perspectives of this generation are focused on representation, being compliant, doing the right thing, and ensuring equality (Smith & Turner, 2015). In comparison, millennials are more likely to refer to *cognitive diversity*; in this sense, they are less interested in developing opportunities for demographic integration for diversity’s sake and more interested in team diversity because of the unique insight afforded by varying personal knowledge, styles, opinions, experiences, and backgrounds (Smith & Turner, 2015). In the business setting, millennials perceive diversity as a means of promoting innovation and reaching business objectives (Smith & Turner, 2015).

However, earlier research by Rizy et al. (2011) showed that among 321 executives in large global organizations (annual revenue over US\$500 million), 48%

strongly agreed and 37% somewhat agreed that diversity and inclusion in the company workforce encourages variety that generates innovation. In companies with more than US\$10 billion in annual revenue, the percentage of executives who strongly agreed that diversity is key to innovation was even higher at 56% (Rizy et al., 2011). When the data were divided according to geographic location of the companies, they showed that executives in Asia were more likely to strongly connect diversity and innovation (56%) when compared to their counterparts in North and South America (48%) and in Europe, the Middle East, or Africa combined (41%; Rizy et al., 2011).

In Smith and Turner's (2015) survey, when defining inclusion, Generation X-ers and baby boomers referred to inclusion as "the process through which organizations ensure that individuals of all genders, races, ethnicities, religions, and sexual orientations are protected, treated fairly, and provided consistent opportunities free from discrimination and prejudice" (p. 9). Their definition is one tolerance and acceptance unrelated to business outcomes (Smith & Turner, 2015). Millennials, on the other hand, perceive inclusion through a lens of leadership-supported connectivity, collaboration, and teaming that promotes professional growth and contributes to business outcomes (Smith & Turner, 2015). Although not natural for older generations, this type of connectivity and cognitive diversity is natural for millennials who have grown up in an age defined by digital technology and social media platforms (Smith & Turner, 2015).

Influence of Diversity and Inclusion

Diverse and inclusive companies tend to have unique business characteristics and engage in lucrative business practices. For example, when compared to companies with weak diversity and inclusion engagement, companies that demonstrate diversity and

inclusion tend to develop a transformational leadership style that drives change (Garcia-Solarte et al., 2018) and are 1.7 times more likely to be leaders of innovation in their respective markets, 2.9 times more likely to identify and build leaders, and 3.8 times more likely to engage in employee performance coaching (Bersin, 2019). The companies' focus on diversity and inclusion also increases their focus on talent acquisition, and employee and customer satisfaction contributing to improved financial performance. These types of advantages are enticing for companies.

Talent acquisition. As a mechanism for expanding the candidate pool to reflect social change, diversity and inclusion initiatives influence the hiring process and subsequently bring about greater gender and racial balance that can help fill job vacancies with top talent (Hunt et al., 2015; Rizy et al., 2011). Diversity and inclusion data from Rizy et al.'s (2011) study showed that participating executives reported having official programs in place to ensure diversity and inclusion in talent recruitment (65%), development (53%), and retention (44%). Only 12% of companies had general programs in place for these purposes, and 2% did not have any programs in place at all (Rizy et al., 2011).

Employee and customer satisfaction. Through improved company ties with employees, customers, and the communities the company serves (McCormick, 2007), diversity and inclusion initiatives thereby may improve employee satisfaction, company image, customer orientation (Hunt et al., 2015), and overall market share (Herring, 2009) in part through improved respect for customer culture (Rizy et al., 2011). Diversity and inclusion are especially critical to the success of virtual global teams who must establish

communication norms and manage processes among people of varied genders, ethnic backgrounds, and functions to achieve a central purpose (Derven, 2016).

Financial performance. Gender- and ethnically diverse and inclusive organizations have been found to financially outperform less diverse and inclusive organizations (Hunt et al., 2015; Paikeday et al., 2019). In their diversity study, Hunt et al. (2015) found that companies who were in the top 25% of gender diversity were 15% more likely than its competitors to have higher than average financial returns overall. More specifically, gender is associated with higher rates of return on equity (35.1%), total return to shareholders (34%; Catalyst, 2004), increased cash flow (2.3 times higher), and mean cash flow (13 times higher for smaller companies; Bersin, 2019). See Table 1 for a full list of gender-related diversity outcomes.

In Hunt et al.'s (2015) study, companies who were in the top 25% of racial/ethnic diversity were 35% more likely to have higher than average financial returns. In venture capital firms, performance success rates among firms with ethnically homogeneous partners was 26.4% lower than in firms with more heterogeneous partners (Gompers & Kovvali, 2018). In data specific to the tech industry, Dalberg and Intel reported the potential for a three-percentage-point increase in revenue for every incremental point increase in Black and Hispanic employees (Dalberg Advisors, 2016). This increase could equate to between \$300 and \$370 billion dollars annually (Dalberg Advisors, 2016).

Impetus for Changes to Human Resource Issues

The ways in which companies manage human resources are influenced by external environmental forces. Predictable and stable environments leave little incentive for businesses to make changes in their personnel management; however, during times of

unrest (war, labor shortages), changes in legislation, (affirmative action, civil rights), union flexing (strikes, collective bargaining), and heightened social expectations (corporate responsibility, equal pay for equal work), businesses tend to respond quickly or risk costly damage, such as loss of market share, loss of shareholder value, ruined reputation, and legal exposure (Jacoby 2005; Joiner & Weiner, 1942; McCormick, 2007).

High-profile, legal woes of the late 1990s and early 2000s spawned an urgent desire for businesses' leadership to implement diversity and inclusion initiatives with the purpose to protect the business. Stricken with costly legal entanglements and monetary sanctions, between 1990 and the early 2000s, financial sector companies Morgan Stanley, Merrill Lynch, and Smith Barney paid out over \$250 million to settle sex discrimination claims (Dobbin & Kalev, 2016). By 2013, Merrill Lynch alone had paid out over half a billion dollars settling such cases (Dobbin & Kalev, 2016).

The financial sector was not alone in discrimination litigation. In 2000, Coca-Cola settled a racial discrimination suit for \$193 million, at the time, the largest payout ever (Dobbin & Kalev, 2016). The 2019 Workplace Class Action Litigation Report, which tracks litigation and key trends year-over-year, showed that between 2014 and 2018, inclusively, businesses paid out over \$10 billion in discrimination-based settlements (Maatman, 2019). More recently, in 2019, Google settled an age-discrimination class-action lawsuit for \$11 million; more than 200 workers over the age of 40 claimed to have been denied equal hiring (Baron, 2019).

Commitment to Promoting Diversity and Inclusion

As companies have sought to stem or prevent financial hemorrhaging and marred reputations, they also have embraced and lauded the value of diversity and inclusion

programs as critical in the sourcing and retaining of quality employees and the improvement of their financial returns (Derven, 2014; Hunt et al., 2018). At the same time, studies linking company diversity composition to improved financial performance and reduced legal risk have driven company investment in diversity and inclusion. Today, 47% of Standards and Poor companies have hired chief diversity officers (CDO) or the executive level equivalent, with 63% of these CDOs hired within the last 3 years (Paikeday et al, 2019). A quick search on indeed.com, a job search engine, for the position “diversity manager” returned over 160,000 postings within the United States alone.

Recently, Intel committed \$300 million into diversity efforts, IBM launched a re-entry program designed to help women get back into the workforce after a sustained career break, and Melinda Gates alone pledged \$1 billion to promote gender equality (Carson, 2018; Gross, 2019). Progressive tech giants, like Microsoft, Facebook, Google, and Apple, who seemingly are on the forefront leading the charge for diversity, have proactively taken up the practice of releasing a publicly available annual diversity report in the spirit of transparency (Gassam, 2019). In April of 2019, 1 week after releasing their diversity report showing unexceptional improvement metrics on the company’s diversity, equity and inclusion progress, tech giant, Google’s vice president of employee engagement and chief diversity and inclusion officer stepped down (Nieva, 2019).

The Need for More Diversity and Inclusion

Despite company investment, in all U. S. corporations, women and ethnic minorities continue to be underrepresented in executive management positions (Gassam, 2019; Hunt et al., 2015). Companies in Silicon Valley—a notable hotbed for high-tech

innovation companies that espouse the value and need of diversity both from a business and social justice perspective (Dobbin & Kalev, 2016)—continue to be male dominated in their leadership and workforce and noticeably lacking in diversity and inclusion (Carson, 2018; Dobbin & Kalev, 2016; EEOC, 2016). Not even Google has been able to recognize significant progress; diversity efforts have equated to a 0.7% point increase in female representation globally and even less modest gains for people of color (Google Diversity, 2019). Given their public stance for embracing diversity and inclusion, proven strategies for promoting diversity and inclusivity, and evidence that companies that are diverse and inclusive perform better, one would expect to see these articulated demands for diversity and inclusion reflected in the leadership and workforce ranks in high tech—perhaps even witness this sector become the pioneer that shatters the invisible glass ceiling. However, the underlying cause of companies' lack of diversity and inclusion may not necessarily be failure to implement diversity and inclusion programs but rather the failure of diversity and inclusion programs that are implemented (Dobbin & Kalev, 2016).

Avenues for Promoting Diversity and Inclusion

The lenses through which diversity and inclusion research have been approached and conducted have varied. Although numerous perspectives exist, three are provided here. One perspective poses an evidence-based model of diversity management, one perspective suggests adherence to evidenced-based best practices, and one example espouses general steps for building diversity and inclusion.

Evidence-based model. From the perspective that diversity and inclusion are complex concepts that exceed mere differences in workplace environments, Roberson

(2006) identified a five-factor model: “(a) employee involvement and learning and growth outcomes for diversity, (b) employee involvement and learning and growth outcomes for inclusion, (c) fair treatment (combined), (d) representation of diverse groups (combined), and (e) top management’s support for diversity” (p. 226). Although distinct concepts, Roberson (2006) found similarities across both the diversity and inclusion constructs; some of the identified characteristics of diversity management included

- fair treatment for all internal and external stakeholders;
- equal access to opportunity for all employees;
- representation of different demographic groups among internal and external stakeholder groups;
- representation of different demographic groups at all levels of the organization;
- leadership commitment to diversity;
- team, interdependence or collaborative work environments;
- diversity education and training;
- focus on innovation and creativity;
- collaborative conflict resolution processes; and
- organizational flexibility, responsiveness, and agility. (p. 22)

Best practices. In 2015, Bersin (2019) examined 128 different aspects of talent management—inclusive of diversity—among 450 global companies and identified eight best practices:

- creating a top level focus and strategy at the CEO/COO [chief operating officer]/CHRO [chief human resources officer] level;
- assigning a top executive the responsibility for leading and sponsoring the inclusion and diversity program;
- creating behavioral standards, diversity metrics, and holding leaders accountable for results;
- training people at all levels on topics like unconscious bias, similarity bias, structural bias, and self-rater bias;
- integrating diversity and inclusion strategies in recruitment, performance management, leadership assessment, training;
- creating employee networks (D&I champions, employee resource groups, and communities of practice) to bring people together;
- holding your company accountable to compete in external award programs to win and compete in this important area; and
- creating an internal and externally visible scorecard to measure progress in all areas. (What Is a High-Impact Inclusion and Diversity Program section, para. 4)

Overall, these eight practices are reflective of the characteristics of diversity management Roberson (2006) identified, and Bersin's suggestion that progress toward diversity and inclusion be measured appears to directly address Derven's (2013) concern that companies fail to measure diversity and inclusion despite claiming they acknowledge their value in talent and customer acquisition. Additionally, Bersin's best practices conceptualize Derven's (2014) findings that diversity and inclusion strategies are most

effective when they (a) are directed at the company level, (b) are ingrained in all aspects and at all levels of an organization, and (c) include outside partnerships with innovative resources.

Key steps for building diversity and inclusion. Building a diverse and inclusive company is a slow process and one that requires incremental and deliberate action (Hunt et al., 2015). According to Hunt et al. (2015), successful diversity and inclusion programs are distinguished by five frames (i.e., the 5As) of company performance and health: aspire, assess, architect, act, and advance. Respectively, the 5As prompt companies to answer five critical questions: (a) “Where do we want to go?, (b) How ready are we to go there?, (c) What do we need to do to get there?, (d) How do we manage the journey?, and (e) How do we keep moving forward?” (Hunt et al., 2015, p. 18).

Translated to performance-specific challenges, the critical concerns are the company’s (a) strategic objectives for developing change (aspire), (b) capacity for determining its capability for change (assess), (c) portfolio of initiative options (architect), (d) initiative delivery model (act), and established infrastructure for continuous improvement (Hunt et al., 2015). Translated to health-specific models, the critical concerns are the company’s (a) capacity to determine the essentials of business health (aspire), (b) discovery process (assess), (c) model for influencing business health (architect), (d) engine for driving change (act), and (e) leadership centered on transformation (advance; Hunt et al., 2015).

In the cases of both performance and health, the steps are dynamic and occur in an iterative fashion rather than progressing linearly (Hunt et al., 2015). The process is one of ongoing learning and adjustment that requires flexibility and adjustment (Hunt et al.,

2015). As companies learn, they are better able to generate new value-added sources and further advance their scope of diversity and inclusion (Hunt et al., 2015).

CHAPTER THREE

METHODOLOGY

The glass ceiling has been cited as an invisible yet significant barrier for women that prevent them from ascending into the higher organizational ranks of decision-making and power. Although this ceiling exists across multiple sectors, the focus of this study was the presence of the glass ceiling specifically in the high-tech sector, an area where women are significantly under-represented at all levels within the organization and where women of color are virtually non-existent. As a ramification of the high-tech industry's racial and ethnic demographics, the majority of participants in this study were White.

The purpose of this study was to fill a gap in the literature regarding the reasons women are underrepresented in leadership roles and the ways some women have successfully challenged the glass-ceiling concept. Insight about how the glass ceiling operates in women's lives was generated in two ways. The first way was through the exploration of both men's and women's leadership journeys to the executive level. The second way was through the exploration of men's and women's perceived influence of company culture and their stated or implied diversity and inclusion policies on the leadership ascension of men and women who work in high-tech.

The following research questions will guide this study:

Research Question 1: What factors, if any, do women and men who worked in the high-tech industry perceive contributed to their ascension into top level positions?

Research Question 2: How, or in what way, do women and men who worked in the high-tech industry perceive gender influences professional advancement?

Research Question 3: How, if at all, do women and men who worked in the high-tech industry perceive that company culture, diversity and inclusion initiatives, programs, or policies influenced their ascension into senior leadership positions?

Research Question 4: What are the greatest challenges, if any, for women and men who aspire to senior leadership positions?

This chapter provides an overview of the research methods used to conduct this study and generate data used to address the study's research questions. This chapter begins with a description of the research design and my role as the researcher. Discussions of the research participants, and the data collection and analysis processes follow. The chapter concludes with an explanation of how trustworthiness of the study was established.

Research Design

This study was an instrumental case study. In such an analysis, there is a case and a unit of study (Yin, 2013). The case is the topic under empirical study (Yin, 2013). It "is a noun, a thing, an entity; it is seldom a verb, a participle, a functioning" (Stake, 2006, p. 1). The unit of analysis is a particular entity (Stake, 2006), the source from which the researcher gathers data (Yin, 2016). Units of analysis used in case studies typically are chosen because they are able to provide detailed and rich accounts of an individual, organization, or event (Patton, 2015). Using such data, researchers are able to generate a holistic and intense description and demonstrate a detailed understanding of the case (Merriam & Tisdale, 2016). Including multiple cases in one's study helps strengthen findings by allowing for data replication and for planned comparing and contrasting of cases (Yin, 2006).

In an instrumental case study, researchers explore a particular case to gain insight into or make generalizations about a topic (Stake, 2000). The case itself is always secondary to some other area of interest (Stake, 2000). In this way, a case study is useful when a researcher is interested in exploring, in real-life contexts, how or why a complex social phenomena exists, especially in instances over which the researcher has no control (Yin, 2016).

In this study, the case was the leadership journey of women in high tech. As suggested by Yin (2016), I included multiple cases to strengthen my findings. As suggested by Stake (2000), the case was of secondary interest in my study. My primary topic of interest was the glass ceiling phenomenon.

The study's unit of analysis was the employee in the high-tech sector. This unit of analysis allowed me to capture participants' perceptions about (a) personal factors that influenced their career advancement to positions of leadership, (b) factors that influenced others to invest in their career advancement to positions of leadership, and (c) how corporate culture and any formal programs in place to support leadership development contribute to and support leadership development.

As a qualitative approach to research, the case study design was appropriate for this study because it provided a framework for me to focus on the complexity and uniqueness of each professional as an individual unit of analysis within the common dimension of high-tech. Given that the high-tech industry as a whole has low female participation across all levels, this case study design allowed for a targeted exploration of the intersection of leadership and gender to gain insight on the challenges and opportunities for men and women within the high-tech industry and how companies are

addressing and supporting them, respectively. Additionally, this design allowed for a deeper exploration of (a) each individual's professional career and leadership journey, (b) valuable observations they made during their journey, and (c) their perceptions about internal and external factors influencing their career ascension. Through these processes, the case study design provided a pathway for gaining a deeper understanding of the complexities that link a company's culture, diversity, and inclusion policies, if any, to individuals' perceptions and motivations regarding their ascension into leadership roles. These complexities are not well-captured through other research design methods such as surveys, which fail to capture deeper context regarding a phenomenon and limit exploration to predetermined questionnaire categories, or focus groups, which do not provide the level of confidentiality required to conduct deep explorations of a topic.

Role of the Researcher

As the primary researcher for this qualitative study, I was solely responsible for all aspects of data generation, collection, and analysis. Because I conducted qualitative research, I also functioned as the primary data collection instrument (see Merriam & Tisdell, 2016). The responsiveness and adaptability of human data collection instruments make them ideal for collecting data in qualitative studies. However, they also allow for the potential introduction of researcher bias and subsequent influence on data analysis (Merriam & Tisdell, 2016). Researchers can mitigate the potential influence of bias by reflecting on and remaining transparent about their relationship with the study topic and associated circumstances (Merriam & Tisdell, 2016). Taking this advice, I reflected on my personal experiences in the high-tech industry and have reported it here.

As an individual who worked in high tech for over 20 years, I approached this study from an emic perspective. I am aware that statistically, the high-tech industry has historically been and continues to be White male dominated with few female role models in positions of leadership and power. My own personal experience in the high-tech industry seemed to mirror the glass-ceiling phenomenon I have discussed in this study and was the basis of my interest in studying this topic. I recognized this personal connection could be construed as a conflict of interest; however, I believe that conscious awareness of my potential bias positioned me to manage and minimize interference of those potential biases in the collection and analysis of data in this study. Including male leaders in my study helped me to maintain a balanced perspective as I explored the effect of gender on the attainment of leadership positions.

Additionally, Peshkin (1988) suggested a researcher's subjectivity could be an asset rather than a liability, and one should enthusiastically embrace it through the conscious management of it. My experience and intimate knowledge of the technology industry can be an asset in knowing what questions to ask, knowing industry buzz words and jargon, and in being considered an insider versus an outsider who may have to spend more time building trust and is not familiar with the technology culture and jargon. Enhanced awareness of my own objectivity allowed me to minimize and self-correct areas where my subjectivity had the potential to influence the study while allowing my emotional proximity to the study to enhance it. As Peshkin (1988) stated,

By monitoring myself, I can create an illuminating, empowering personal statement that attunes me to where self and subject are intertwined. I do not thereby exorcise my subjectivity. I do, rather, enable myself to manage it. (p. 20)

Using Peshkin's self-monitoring approach, I paid close attention to points within the interview where my subjectivity was invoked and recorded these feelings within my jot notes.

Two of the male executives in my study were individuals I knew. Both were suggested to me by previous colleagues of mine (see network sampling process in subsequent section). One executive was a perfect criterion fit. Given I knew him personally, I asked him directly to join my study. The other individual was someone with whom I worked early on in my career. However, I had not remembered him until he reminded me, during his interview, of our connection.

Because I knew these two individuals, I recognized the potential for bias in data analysis. I maintained awareness of the potential for bias while analyzing their data to avoid projecting expectations onto the data. The use of a second coder helped confirm that my analyses were not, overtly at least, biased.

Participants

Participants in this study were executives ($N = 10$) in leadership positions within the high-tech industry in the United States. An equal number of men and women participated in the study. The female executives represented individuals who had broken through the glass ceiling in the high-tech industry, and the men represented their peers.

Sampling Strategy

As Patton (2015) has contended, all qualitative research sampling falls under the umbrella term *purposeful sampling*. The term refers to the processes by which qualitative researchers seek to find a subset of information-rich cases that are enmeshed in the phenomenon being studied (Patton, 2015). Because the glass-ceiling phenomenon

pertains to executive level leadership, it was necessary to purposefully recruit leaders at the executive level. Because my particular interest was the glass-ceiling phenomenon as it existed in high tech and because I sought to include men and women who met specific criteria with regard to title, experience, and time-in-position, I also employed a criterion sampling strategy.

Originally, I also had intended my sample to be random. However, because I was unable to recruit an appropriate number of participants using my initial recruitment strategy, it was necessary to recruit participants using network sampling. Network sampling involves the recruitment of participants from a particular group with demonstrated patterns of connectivity (Airoidi et al., 2011). Researchers find network sampling useful when they are trying to recruit rare populations for study (Lee, 2008). Although network sampling typically refers to the recruitment of participants from a particular interconnected network (Airoidi et al., 2011), the term also refers to researchers' use of their own personal network of family, friends, and associates to recruit study participants (Lee, 2008). In this study, I approached two past colleagues with whom I worked. One of the colleagues was a woman who worked at the senior level and with whom I worked for 15 years. The other was a man who recently transitioned to the executive level and with whom I worked for 18 years. Both worked in the tech industry at the time I approached them for recruiting help.

Sample Size

Because resource limitations (Gay et al., 2015) and study methods influence the generation of data, it is difficult to determine the number of participants needed to generate adequate data to appropriately answer a study's research questions (Merriam &

Tisdell, 2016). For that reason, there is no standard size for samples in qualitative research (Marshall et al., 2013). Some researchers have included up to 60 or 70 participants in their qualitative studies (Gay et al., 2015). However, Guest et al. (2006) and Onwuegbuzie and Leech (2007) suggested that 12 participants was an ideal number when collecting data using interviews. Typically though, qualitative researchers do not include more than 20 participants in their studies (Fraenkel et al., 2012; Gay et al., 2011; Marshall, et al., 2013). To keep my study to a manageable size yet still include enough individuals to generate rich thick data needed to answer my research questions, I had planned to include five executive men, five executive women, five mid to senior level men (nonexecutive), and five mid to senior level (nonexecutive) women in the study for a total of 20 participants.

The literature on response rates to study invitations is scant. I did find a study by Baruch and Holtom (2008) in which the researchers explored response rates to invitations to participate in survey research. Results indicated that whereas the response rate for individuals was 52.7% ($SD = 20.4$), the response rate at the executive level was lower at 35.7% ($SD = 18.8$). Extrapolating these findings to my own qualitative research and understanding the demanding nature of executive-level positions, I anticipated my response rate would be less than half of that indicated by Baruch and Holtom. My goal was to include five executive men, five executive women, five nonexecutive men, and five nonexecutive women. Therefore, I determined I would need to invite 35 participants per sample type for a total of 140 requests for participation.

Generating the Sampling Frame

The core group of participants was sourced from the business social network LinkedIn. I chose LinkedIn as a source because LinkedIn is a notable, popular, and world-renowned professional business network of over 645 million users, including Fortune 500 executives across multiple industries (LinkedIn, 2020a). LinkedIn itself can be thought of as an online business card. It is designed specifically for individuals to highlight their own businesses and/or professional careers. Unlike other social networks, LinkedIn provides a platform that allows professionals to connect and network with other professionals, search for career opportunities, develop professional ethos and social capital with a specific professional network, and recruit potential employees (Johnson, 2019). LinkedIn profiles are designed so users can highlight their skills and areas of expertise; services offered; job history, including resumes, educational experience, previous places of employment, and titles held; and accomplishments (LinkedIn, 2020b).

To locate potential participants, I used LinkedIn's advanced search engine to generate a list of individuals whose online profiles met specific criteria within the high-tech industry. LinkedIn's advanced search engine offered a variety of filters to narrow search result relevance from its vast network. First I applied a general set of filters to the data to narrow them by geography (United States), company type (public), industry (tech), job function (information technology), years of experience (at least 10), company tenure (at least 3 in current company), and LinkedIn activity level (active in last 30 days). These parameters allowed me to narrow the LinkedIn data base to participants who met the general inclusion criteria for this study.

I chose only individuals working in public companies in the United States for convenience of scheduling interviews and to increase the homogeneity of the sample with regard to regulatory compliance. Choosing the industry code “tech” narrowed the industries to biotechnology, computer and network security, computer hardware, computer software, computer networking, defense and space, internet, semiconductors, wireless, telecommunications, and information technology and services. I was then able to specify “information technology” to further narrow the scope of the search to individuals in similar roles. Because LinkedIn does not provide a more narrow parameter within the information technology category, it was necessary for me to identify individuals in high tech on a case-by-case basis, a task I completed during the participant selection process described in the next section. Given my professional background includes over 20 years in the information technology industry, I was well-positioned to read individuals’ titles and LinkedIn profile descriptions to determine whether individuals in the sampling frame worked in high tech.

Searching for individuals with at least 10 years of experience ensured I recruited individuals with similar levels of experience. The 3 year minimum for working at the current employer ensured that the individuals had ample time to become immersed in their companies’ cultures and understand their companies’ policies and programs—both spoken and unspoken. (Because of the participant recruitment challenges I faced, explained in a subsequent section, I ultimately accepted into the study one participant who had only 2 years and 1 month of experience in the new company he had started.) I choose individuals who had been active on LinkedIn in the last 30 days because I interpreted that activity as an indication of professional career activity.

From the original data set of individuals who met the inclusion criteria for geography, company type, industry, job function, years of experience, company tenure, and LinkedIn activity level, I then generated two subsets: one for executives and one for nonexecutives (mid to senior management). The inclusion criteria for executive and for nonexecutive individuals were obtained using filters for seniority level and years of experience. Individuals at the executive level must have been vice presidents or above with at least 1 year of experience in their current position. Individuals at the mid to senior level must have had a seniority level of not lower than manager and not higher than staff manager with 6 or more years in their current management title.

Choosing individuals with titles of vice president or higher who had been in their current executive-title role for at least 1 year ensured I recruited individuals in senior leadership roles who were acclimated to their positions. In the corporate world, it is reasonable to expect a promotion to a higher management level title within 6 years; therefore, it was logical to assume that individuals who had been in the same mid to senior leadership role for more than 6 years were stuck at their leadership level.

The filtering process yielded a sampling frame of 1,307 executives and 784 mid to senior level managers. Without the capacity to sort for gender in LinkedIn, it was necessary to do so manually. I accomplished this task while transferring data from LinkedIn to an Excel spreadsheet in conjunction with participant selection.

Participant Selection

At first, I selected participants from the LinkedIn list incrementally, choosing every seventh individual on the list. After searching through 294 potential candidate profiles, I had sourced 39 male executives but only six female executives. Realizing the

challenge in sourcing female executives, I determined I needed to engage in creative searching and subsequently returned to LinkedIn.

For this search, I filtered the data using the same criteria from my initial search plus a filter for individuals who were in the news in the last 30 days. I selected all 15 of the hits that were returned and crosschecked for duplicates against the six women I had located using my initial search parameters. There were no duplicates. However, I was still short 14 female executives. I then returned to the original LinkedIn list and chose the first 14 women I found. For the nonexecutive group, I chose every seventh individual on the list. Given my challenging experience locating female executives, I selected the first 35 female nonexecutives on the list.

Using the LinkedIn InMail service, I contacted the 39 male executives, 35 female executives, 35 male nonexecutives, and 35 female nonexecutives I located during my search. In my message, I introduced myself as a doctoral candidate at the University of San Diego and (a) explained the purpose and voluntary nature of my study, (b) ensured the confidentiality of their responses, and (c) identified the benefits and risks (there were none) of participating in the study. I also provided my contact information and a link to an online survey I used as a preliminary screening tool to confirm the potential participants met the study's inclusion criteria and to collect basic demographic information (gender, age, ethnicity, educational background). Follow-up invitations were sent to those who had not responded 2 days after the initial contact reminding them of the study and again asking for their participation.

Of the 74 executives I contacted, five individuals responded—one man and four women. Three women responded to join the study, and one woman and the one man

responded to decline participation. Of the 70 nonexecutives I contacted, one woman expressed initial interest but then stopped responding.

Significantly short of my participant goal, I returned to the original LinkedIn list and chose every sixth male executive and nonexecutive and the first 35 female executives and nonexecutives in the list. I contacted these potential participants through Linked In and received three responses: one male executive and two female executives. None of the three executives followed up after the initial contact.

Given the poor overall response rate, I determined it was necessary to both broaden the scope of my search to include private companies and to alter my search method by accessing personal connections. As described in the Sampling Strategy section, I sought the help of two prior colleagues who contacted potential participants on my behalf. Although their emails varied slightly, all of the emails included the same basic information about the study that I included in the invitations I sent to potential participants using LinkedIn.

One colleague connected me with 20 executives, six of whom fit the criteria and four of whom (all men) joined the study. The other colleague connected me with 10 executives, five of whom met the criteria and four of whom (one man and two women) joined the study. This colleague, who was in senior management herself, also agreed to participate in the study. However, after approximately 8 weeks and much effort, it was clear that I would not be able to get the 10 nonexecutives I needed for the study and so I dropped that group.

Data Collection Procedures

Prior to recruiting participants for this study, I was granted approval to conduct this study from the Institutional Review Board of University of San Diego (see Appendix A). Prior to conducting interviews, I secured consent from each of the participants. One participant signed an electronic copy of the consent form (see Appendix A) I had emailed her previously. The remaining participants provided verbal consent prior to beginning the interviews.

All data were collected during one-on-one, semi-structured interviews using an interview protocol (see Appendix C). Eight of the interviews were conducted over the phone; two interviews were conducted using the audio feature of Zoom. All interviews were recorded using a primary and backup digital voice recorder. The interviews were scheduled for 60 minutes each, although the actual interviews lasted between 45 and 70 minutes.

In some instances, personal discussions with participants continued after I had finished asking questions. When those conversations were captured on the digital recording, I considered them data and included them in my analyses. Additionally, I jotted down notes throughout the interview to capture initial thoughts as they entered my mind and to remind myself of items of interest or import on which I wanted to follow up during the interview. Finally, as suggested by Merriam and Tisdell (2016), immediately following each interview, I reflected on the interview process and data I had collected; I captured my observations and thoughts in an analytic memo documenting my first impressions and interpretations of the interview, areas of confusion, missteps, interviewee and interviewer reactions, and opportunities for new questions.

Instrument

Yin (2016) described the process of qualitative interviewing as “a social relationship” (p. 142). As such, an interview guide, when tailored to the phenomenon of interest, serves as a set of probes that helps the researcher guide the interview in a conversational mode and allows for two-way interaction where the researcher can ask broad, open-ended questions and subsequent follow-up prompts to encourage the participant to expand or clarify on a topic (Yin, 2016). In this way, researchers can address important questions while at the same time allowing for unplanned questions and the emergence of unplanned topics in the moment (Merriam & Tisdale, 2016).

The interview items I created for the protocol were open-ended and designed to prompt the interviewees to share their stories spontaneously while allowing me to both capture relevant data and to ask impromptu follow-up questions for clarification or to encourage the interviewee to share more detail. The open-ended questions fostered a conversational tone during the interviews. Because I wanted the data to emerge organically, the design of the data collection tool was appropriate to use for this study.

It was important that discussions about gender inequity to emerge organically because in the corporate world, openness to discussing the glass ceiling phenomenon and gender bias is influenced strongly by current events and potential corporate social accountability impact. With the majority of corporate businesses in the spotlight today, specifically being judged on their responses to equal pay, mandatory inclusion of women on boards of directors, and improving their overall diversity in the workforce, the conversation on gender can become an exercise in navigating political correctness. Individuals at the executive level have a responsibility to protect their organization's

reputation externally. In light of these factors, I had been concerned that direct questions about gender inequity at the executive level would either put the interviewees on guard or lead to recitation of company policy, both scenarios that quickly and easily could have ended my interviews abruptly or greatly diminished the depth of data I would have been able to collect.

To get the discussion going, I asked each of the participants to tell me something about their leadership journey or about themselves, for example, how they got into the tech industry. Based on the information the participants provided, I guided the discussion to indirectly elicit data about their ascension to leadership, their contribution to that ascension, and both the support they were provided and the barriers they faced along the way. Additionally, I asked follow-up questions to promote discussion that shed light on company culture, including policies and programs that might be related to gender equity, inclusion, and diversity.

Prior to conducting the interviews, I asked participants to complete the online inclusion and demographic survey. Only two of the female executives completed the survey. Therefore, it was necessary to gather that data from the other participants during the interviews. I had planned to ask the questions at the end of each interview; however, much of the information I was seeking came out naturally in the discussions so I chose not to ask any additional questions. Through LinkedIn and other online resources, I was able to fill in any remaining missing demographic data about the participants.

Data Analysis

Methods for analyzing qualitative data vary (Merriam & Tisdell, 2016; Saldaña, 2010) and are dependent on the type of research being conducted and the purpose for

which the research is being conducted (Creswell, 2014). Typically however, qualitative researchers make sense of large quantities of data (Richards, 2015) by examining and interpreting smaller units of data (Creswell, 2014) using inductive approaches to data analysis (Mertler, 2016). To analyze data in this study, I used an inductive coding process that included both pattern coding and conceptualization phases of analysis.

As the name implies, during the pattern coding phase of analysis, researchers look for patterns in the data (Percy et al., 2015). After the patterns are identified, the researchers organize them into logical categories (Merriam & Tisdell, 2016). If the categories are distinct and compelling enough to stand on their own (Leedy & Ormrod, 2016), the categories become themes. Remaining categories are then conceptualized into more comprehensive themes (Lichtman, 2013; Merriam & Tisdell, 2016; Saldaña, 2010) relevant to answering a study's research questions (Creswell, 2014). This process was similar to what Polkinhorne (1995) described as analysis of narratives where researchers use paradigmatic analysis to interpret data, collected in the form of stories, and generate themes. Although the interview prompts used to collect data in this study were not entirely focused on collecting data in story form, much of the data collected were narrative in nature.

Before I began the thematic analysis of the data, I generated individual participant summaries I not only used to conduct member checking (see Credibility section) but also to organize each participant's leadership journey chronologically. Although I did not present the summaries as part of my findings, this process was similar to what Polkinghorne (1995) described as narrative analysis where researchers use elements of the collected data to generate stories. This separate but equally important part of the data

analysis process provided me an opportunity to reflect on the data holistically and make connections prior to looking at the data incrementally using thematic analysis.

Trustworthiness of the Data

The purpose of conducting qualitative research is to discover meaning; the process is inductive in nature (Merriam & Tisdell, 2016) and is ontologically, epistemologically, and methodologically apart from quantitative research (Guba & Lincoln, 1994). As such, the methods for evaluating qualitative data differ from those for evaluating quantitative data (Lincoln & Guba, 1985; Trochim & Donnelly, 2008), the purpose of which typically is to prove hypothesized claims (Merriam & Tisdell, 2016). Merriam and Tisdell (2016) discuss rigor in qualitative studies using the traditionally quantitative, and contested, terms *validity* and *reliability*. However, a more commonly accepted paradigm for evaluating qualitative research is *trustworthiness*, which can be established by demonstrating the credibility, dependability, confirmability, and transferability of a study (Denizen & Lincoln, 2018).

Credibility

Credibility refers to how believable the study data are deemed to be (Mertler, 2016). One method for establishing the credibility of the data is to solicit feedback from participants (Trochim & Donnelly, 2008). This process, known as *member checking*, allows researchers the opportunity to seek clarification about previously collected data, ask participants follow-up questions (Merriam & Tisdell, 2016), and generate feedback on initial study findings (Creswell, 2007; Merriam & Tisdell, 2016; Mertler, 2016). It also allows participants the opportunity to provide additional data they feel necessary to accurately express the intended meanings of their original statements (Merriam & Tisdell,

2016). Member checking is conducted before final study results are compiled (Mertler, 2016) so that researchers may consider participants' feedback in their final analyses and presentation of data (Bryman, 2004; Merriam & Tisdell, 2016).

To establish credibility in this study, I conducted member checking. This process allowed me to confirm the accuracy of the transcription process and to provide the participants the opportunity to make changes to, update, or clarify the information they shared with me during the interview. For each participant, I summarized my understanding of the life history and career journey data I collected during each interview. I sent the summaries, along with the actual transcripts of the interviews, to each participant offering them the opportunity to review the documents and to provide feedback. Of the 10 participants, three men and three women responded to my request for feedback, a response rate of 60%.

One of the three male participants did not indicate a need for changes. Rather, he confirmed my summary was correct and shared that he was surprised how much he had opened up during the interview. One of the two male participants who provided feedback clarified that his family-related responsibilities and jobs he held during his teenaged years were more a function of developing his strong work ethic and making money as opposed to my interpretation that those responsibilities and jobs were sources of early exposure to leadership. The second of the male participants who provided feedback clarified that although his parents did not care what college he went to, they did encourage him to go to college; I had described his parents as having a lackadaisical attitude toward education. This participant also confirmed my assumption that part of his desire to minimize travel for work was because he had started a family.

One of the three female participants did not indicate a need for changes. Rather, she confirmed my summary was accurate and provided a source for the leadership principles she discussed in the interview. One of two female participants who provided feedback included clarification of her college major which had been political science rather than business as I had described. The second of the two female participants who provided feedback clarified her age range during a particular point in her career and corrected my misclassification of the type of company for which she worked directly after college.

Dependability

Dependability refers to the perceived consistency (Merriam & Tisdell, 2016) and stability of the study data (Mertler, 2016; Trochim & Donnelly, 2008). Researchers can demonstrate study dependability through transparent discussions of potential researcher biases (Merriam & Tisdell, 2016) and any methodological adaptations made while implementing the study (Mertler, 2016; Trochim & Donnelly, 2008). As part of my discussion of my role as the researcher in this study and in the preface to this study, I shared my personal experiences with the glass ceiling in the high tech sector and the subsequent potential for personal biases based on those experiences. Additionally, I explained, in detail, changes made to the original study methods as the result of challenges recruiting participants.

Confirmability

Confirmability refers to how accurately a study can be duplicated (Trochim & Donnelly, 2008). Although qualitative research is intuitive, subjective, and not designed for the purpose of being duplicated exactly, qualitative studies can be used as models for

other researchers with an interest in studying similar phenomenon, settings, and participants (Trochim & Donnelly, 2008). By clearly and thoroughly describing one's methodological choices and processes, other qualitative researchers not only can determine the applicability of a study to their own unique settings but also benefit from improved chances of duplicating the research and generating similar outcomes (Trochim & Donnelly, 2008).

Because the measure indicates a researcher has achieved a valid interpretation of the data (Cho, 2008), researchers also can use intercoder reliability to demonstrate confirmability in qualitative research (Gagnon, 2010; Richards, 2015). To conduct intercoder reliability, two coders separately analyze a set of raw data to generate codes and, potentially, categories and themes (Cho, 2008). The most accurate indication of intercoder reliability is achieved when both coders use the same raw data (Richards, 2015). However, when low intercoder reliability is found, researchers should consider the potential that one, or both, of the coders lack the skills necessary to properly code data (Cho, 2008). In any case, the use of second coder provides a good way to determine if one's data analysis may be either too narrow or too broad (Saldaña, 2009).

There is no one agreed upon method for establishing intercoder reliability; however, percent agreement is an often used method (Cho, 2008). The percentage of agreement needed to claim intercoder reliability varies in the literature. For Creswell (2014), a good level of intercoder reliability is achieved with 80% agreement between coders. Saldaña (2009), on the other hand, indicated achievement of good intercoder reliability when the rate of agreement was at least 85%-95%.

To demonstrate confirmability in this study, I clearly and thoroughly described my study design; data collection process, including participant recruitment and instruments; and data analysis processes. Additionally, I employed the services of a second coder to confirm my interpretations of the data. As suggested by Saldaña (2009), I considered 85%-90% a good indication of intercoder reliability in my study. After working with my second coder, I deemed that the intercoder reliability of the study was good according to Saldaña's description. However, there were three areas where we had approached analysis of the data differently—headers, quote usage, and word choice.

With regard to headers, for example, the second coder had Varied Experience, Taking Advantage of Opportunity, and Taking Initiative as subheaders of the Trustworthy section (Theme 3: Successful Leaders Share Common Characteristics); however, I perceived they belonged in other areas. After discussing our reasoning for our choices, we agreed to dissolve Varied Experience and redistribute Taking Advantage of Opportunity to the Self-Promotion subsection and Taking Initiative to the Committed subsection. The application of quotes to different concepts also was a point of discussion. For example, I originally categorized one quote as a leadership opportunity; however, after discussion, we agreed it better exemplified company culture. Word usage also differed between myself and the second coder. Whereas she had used more general language, I had used business language specific to high tech, such as “cut-over.”

While discussing the differences in our coding choices, the second coder and I both agreed that some of the differences in the usage of quotes were related to the need for clarification within the data. For example, one participant had made a statement about how the number of women working in technology had peaked in the 1980s. However,

what the participant had actually meant was that the number of women obtaining technical degrees had peaked in the 1980s. We also agreed that the distinctions in word choice were not surprising given the second coder's lack of familiarity with technology and business terms.

Transferability

Study data are considered transferable when they are perceived to be applicable in other settings and with other populations (Mertler, 2016; Trochim & Donnelly, 2008). It is understood that qualitative research is unique to each particular setting in which it is conducted and to each particular population under study (Trochim & Donnelly, 2008). Therefore, qualitative researchers do not typically intend to generalize their data (Creswell, 2014). However, other researchers may recognize similarities between their unique settings and populations and those in other qualitative research (Mertler, 2016) thereby finding value and potential transferability in the study (Trochim & Donnelly, 2008). Clear and thorough descriptions of potential possible researcher biases (Fraenkel et al., 2012) and the study setting and population can help researchers make informed decisions about the transferability of qualitative research (Leedy & Ormrod, 2016; Mertler, 2016). To improve the transferability of findings in this study, I openly addressed the potential for research bias and clearly and thoroughly described my study setting and population.

CHAPTER FOUR

RESULTS

Result of thematic analysis yielded four themes: paths to high tech, paths to leadership, characteristics of successful leaders, and characteristics of company culture. A detailed description of the study findings is presented in this chapter organized by themes. First however, the characteristics of the sample population are presented.

Characteristics of the Sample

The study sample was made up of 10 executives in the high-tech industry. Characteristics of the study sample are presented in this section. Descriptions of both the participants' personal and work-related characteristics are presented. Additionally, for each of the participants, I reviewed the online presence of the company for which they worked to gain an understanding of its public position, if any, on company culture, and diversity and inclusion.

Demographics

Of the executives, five were women, and five were men. The majority (80%) of the participants was over the age of 45; half were between 45 and 60 years old. I was not surprised to find at least one executive from each gender group under the age of 45. Data on CEO age varies. For example, using data from a Wall Street Journal analysis, Cutter (2019) reported that only 6% of S&P CEOs are under the age of 50; data from the U.S. Bureau of Labor Statistics (2020) showed the average age of CEOs (men and women combined) is 52.7; and Withisuphakorn & Jiraporn (2017) reported that the averages of male and female CEOs are 55.64 and 53.64, respectively. However, most employees in the tech industry are in their late 20s, with an average industry age of 32 (Pelisson &

Hartmans, 2017). Therefore, it was not illogical that 20% of my study sample was under the age of 45.

Not unexpectedly, the vast majority of participants and all the women in the study were White. This pattern is typical of race distributions in the high-tech industry where people of color have miniscule representation (EEOC, 2016) and less than 1.6% of high-level positions are filled by women (see Scott et al., 2018; Simard et al., 2008). The personal characteristics of the study sample are presented in Table 2.

Table 2

Personal Characteristics of the Study Sample

Characteristic	Women	Men
Age (years)		
< 45	1	1
45 – 60	2	3
> 60	2	1
Race		
White	5	3
Asian		2

The educational backgrounds of the executive participants in this study varied greatly. With regard to primary education, most participants attended public schools. One executive (FE 4) attended private school, and one (ME 1) attended what today would be considered a STEM magnet school. FE 4 left high school early to attend a freshman program. Regarding higher education, all participants were college educated with 6 individuals holding a STEM-related degree with the remaining 4 holding a liberal arts degree.

Although all participants completed secondary education, three participants expressed that school had been challenging for them. Those participants spoke about how school in general was “very hard/very difficult” (FE 2), high school had been “a little rough” (ME 5), and college had been a “struggle to get done” (ME 3). FE 2 stated she struggled specifically because of her dyslexia. Although she said she could understand concepts, her reading proficiency suffered. As she explained, “I slid through. I managed. I did a lot of workarounds.” ME 3 explained that his struggle had much to do with the stress of the competitive nature of school:

There were only six institutions and they admitted a total of 2000 people. . . . And the number of people who competed for those 2,000 slots were over 500,000 and . . . [there were] four 3 hour exams.

Additionally, great import had been placed on pursuing higher education.

Company Descriptions

Both men and women had professional backgrounds in startup (private) and in established private public tech companies. Two of the five women also had worked in, or were founders of, a non-profit (not indicated in table). More than half (60%) of the executives worked in companies with fewer than 200 employees. Those companies were mostly startups. When compared to women, 4 times as many men worked in startups. With the exception of one male executive, all the executives worked in companies with either fewer than 200 employees or more than 50,000. When compared to women, twice as many men worked in small companies with fewer than 200 employees.

Of the companies for which the participants worked, 40% were publicly traded companies, and 60% of the companies were privately held. Of the private companies,

67% were startups on the West Coast. Of the 40% publicly traded companies, three companies were on both the S&P 500 and Fortune 500 lists for the year 2019. Two of the women and one man worked for an S&P 500 company.

All participants held a VP title or higher and had been in their current titles between 1 and 9 years. Of the male executives, one also held the title of senior vice president; three male executives and one female executive were either founders or cofounders of their companies. Men had been in their current titles longer than women had been in theirs, with 80% of the men having been in their titles for 6 or more years. In contrast, 80% of the women had been in their titles for less than 6 years. The main work-related characteristics of the study sample are presented in Table 3.

Company Culture, Diversity, and Inclusion

Public companies. Four of the participants worked at publicly traded companies. In all cases, publicly traded companies were much larger than private companies. The company websites for publicly traded companies generally were diversity and inclusion forward, specifically naming the actions and programs promoting diversity and inclusion for women and minorities. All of the companies had at least a webpage dedicated to their diversity and inclusion mission as well as their company culture goals. All companies included information on their diversity and inclusion efforts through their public filings; one company voluntarily released a yearly diversity and inclusion report showing year-over-year change in their demographics and efforts to create diverse teams.

Table 3*Work-Related Characteristics of the Study Sample*

Characteristic	Women	Men
Company type		
Current		
Private ^a (Startup) ^b	2 (1)	4 (4)
Public	3	1
Previous		
Private (Startup)	5 (2)	5(5)
Public	5	5
Company size		
< 200	2	4
201 - 10,000		1
10,001 - 50,000		
> 50,0000	3	
Title		
VP		2
SVP	1	
EVP	1	
C-suite	3	3
Time in title (years)		
0 - 3	1	1
> 3 - 6	3	1
> 6	1	3
Time in company (years)		
0 < 5	2	2
5 < 15	2	3
15 < 25	1	
Time in tech (years)		
0 < 9	1	
9 < 20	3	2
> 20	1	3

^aPrivate are non-profits or self-employed/entrepreneurial businesses with little to no employees. ^bStartups are a subset of private.

All but one of the companies had formal and informal diversity and inclusion programs, including employee resource or network groups. Those groups were employee-led and focused on the cultural awareness of different demographics, including disability

status, veteran status, race/ethnicity, and sexual and gender orientation. Four company websites provided actual diversity statistics that included at least one statistic about women in their workforce or women in leadership roles. All companies espoused commitments to create a company culture free from bias through employee education and awareness on conscious and unconscious biases. All companies also had a version of pay equity between the genders and/or stated goals on gaining a certain percentage of women in leadership by a target date. The board of directors' profiles of public companies included at least two or more women.

Private companies. Six of the participants worked for privately held companies. In contrast to the public companies, private companies did not have dedicated online space for diversity and inclusion goals and instead were more product focused. All but one of the companies, however, mentioned diversity and inclusion in their mission, vision, or values statements or in their hiring approach. Most companies indicated a culture of continual learning and boasted benefits that were women friendly, such as flexible work hours and parental leave. One company specifically listed diversity as a core value. All but one of the companies' boards of directors had at least one female member or there was at least one woman listed as part of the leadership team.

Theme 1. Paths to High Tech Were both Planned and Accidental

Participants' journeys to high tech varied. The majority of executives ($n = 8$) described some version of an unplanned path into tech. They described that path as "an accident" (FE 4, ME 1), "coincidence" (FE 3), and "rather serendipitous" (FE 5). ME 5 said he "fell into" tech, and ME 4 considered himself an "accidental technologist."

Three executives described their accidental paths into tech. FE 3, who holds a liberal arts undergraduate degree and an MBA, worked for a software company right out of college. With her MBA, she envisioned she would move into marketing or advertising but found herself back in tech. She said, I “didn’t expect that I’d be going back into the technology field but [I am] so happy that I did.”

After a series of government jobs in which she applied her political science degree, FE 5 found herself being “asked to take on the responsibility for a major IT project.” This, as she explained, was her transition into technology. Like FE 3, FE 5 also was surprised that she ended up in tech. She said, “I have no formal education in technology at all, either undergraduate or graduate. So that’s sort of what makes the, ‘How did I get to a technology company when I have no education in that space?’” This initial exposure to technology positioned her to take on more technical responsibilities in her position.

ME 1 was a computer hobbyist at a young age but had not planned on working in tech. He said,

Just kind of because of the necessity to pay the bills, it put me on this path and exposed me to these things that I had an immediate intellectual inclination to, and

I was getting paid for it, so I’m like, wow.

ME 4 started his career in finance and banking. However, after moving to the Bay area where there “was a huge exposure to technology back in the late 90s . . . , I was lured into basically the high tech scene.” FE 3 summed up the unplanned nature of these paths to high tech when she said, “Does anyone choose the career they choose?” ME 1 had the same perspective: “I think people fall into tech careers by accident.”

However, four of the executives described unplanned paths into tech followed by active pursuit of work in the field. ME 2 and ME 5 explained that their unplanned journeys began in college. ME 5 started off as an architecture major before transitioning into tech. “I had to take some programming classes as a prerequisite to get into the upper division classes and something just clicked. I really enjoyed the programming classes.” Similarly, ME 2, a chemistry major,

picked up computer science around my, I guess, middle of my sophomore year as I realized I didn’t want to become a doctorate of chemistry, . . . and then just really liked the problem-solving aspect of programming.

ME 2 ultimately ended up with a dual chemistry and computer science degree that allowed him to pursue work in tech sales and manufacturing.

Following completion of a master’s degree in math, FE 4 secured a programming position and found her “calling was in technology.” That interest drove her to obtain a computer science degree. Similarly, FE 2 both fell into technology but then pursued it. She explained,

My roommate had an interview, and she got another job, and so I took her interview, and it was working for a . . . [phone sales company]. And through that job was when I got interested in the technology around it. And I found it, for me, it just was very interesting.

After her interest in tech had been piqued, she “was always trying to get into the technology side.”

Only two executives indicated they had purposefully pursued careers in technology. For ME 3, who grew up in India, the path to tech “was very clear in my

mind.” As he explained, “I knew that I was going to be in tech because that’s what my first job out of school was and that was my master’s and bachelor’s were HP learning.”

However, he also

was very aware of the tech world [at a young age]. Like even when I was in eighth and ninth grades [in India]. . . . Intel and HP were known names to me . . .

I’m willing to bet that 99.99% of the population in the US at that point in time did not know the names HP and Intel.

FE 1 also was very purposeful in pursuing a career in tech. She originally worked in nonprofit, which she found rewarding mentally but which did not afford her financial stability. Knowing she was ready to make a move, she considered her surroundings and local career options, ultimately choosing tech because it seemed prudent. She said, “I knew I wanted to run with the private sector and had targeted technology.” Although she acknowledged that she “didn’t really know what that” looked like, she applied for local masters’ programs in business and was accepted. It was “through that process [that she] made a transition into technology.”

Theme 2. Paths to Leadership Varied

Executives’ paths to leadership varied with regard to factors that contributed to executives’ ascension into leadership and the challenges to leadership ascension the leaders faced. Discussions of these characteristics are presented in this section. When applicable, subcategories of those characteristics are included.

Factors Supporting Leadership Ascension

The technical career trajectory of participants in this study were across three business domains—corporate (publicly traded), private, (including startups), and

government. All five female executives worked in corporate; two of the female executives had also worked in the private domain. All five male executives worked in both corporate and private domains. One female executive and one male executive started their careers in government.

According to ME 2, leadership journeys are “never ending.” In this respect, factors that contribute to leadership ascension are potentially limitless. However, four main factors of support to leadership ascension emerged from the data: support from others, mentorship, opportunities to network, and availability of leadership opportunities. Although mentorship is a type of support for employees, because it is a specific and structured form of support, it is discussed separately here.

Support from others. Eight participants referred to receiving some type of support enabling them to pursue and attain leadership roles. That support came from spouses and family, bosses, headhunters, and previous coworkers.

Spousal/family support. Every female executive specifically cited spousal and/or family support as a significant factor enabling them to pursue and attain leadership roles. All four executive women were married; one was widowed. All but one woman had children. As new opportunities to rise in the ranks materialized for these women, they were intentional in discussing the pros and cons of the opportunities with their spouse, specifically on how the opportunity might impact the family unit.

One way spousal support was expressed was in the form of encouragement. In some cases, participants were encouraged to take risks. For example, FE 2 recalled almost deciding to not interview for a potential new job until her husband encouraged her. As she explained,

I remember sitting with my husband saying, “You know, I would really like to go and work for a technology company instead of working for a food company in technology. Because really, how far am I going to go?” And he’s like, “Well, why wouldn’t you go interview?” And I said, “Well, I’m pregnant. Am I really going to go do that when I’m three months’ pregnant?” And he said to me, he goes, “What if you weren’t pregnant?” And I said, “I’d do it in a second.” So, he said, “Go. Go interview.” And I never thought that they would hire me, but they did.

Later, FE 2 was offered a position in a company out of state; she subsequently moved—with her two children and the family dog—to pursue that opportunity. FE 2’s husband supported her decision. FE 3 expressed a similar sentiment: “Thankfully, I had a lot of people around me, including my husband, encouraging me like, ‘Just go for it. Why not?’” Similarly, FE 1’s husband encouraged her to take a risk leaving a financially stable corporate position in the tech industry to join a startup that had the promise of opportunity: he “was just like, ‘Okay, let’s do this. Now or never.’”

For FE 3, encouragement to let go of her feelings of guilt for being away from her family so much came from her husband and encouragement to have confidence in herself came from her brother. She recounted her husband’s response to her concerns:

“They went to school. They came home. They did homework. They went to soccer practice and went to bed. What did you miss? You know? They didn’t miss you because . . .” I was like, “Yeah, but . . . I could have been sitting on the sidelines in soccer practice.” He’s like, “Really? Come on. Really?”

She also expressed that this support was consistent: “He was always trying to bring me back to reality like, ‘You’re not missing anything. Fighting with them over homework is

not something to be missing.” FE 3’s brother encouraged her to move past her own reservations with a leadership opportunity. As she recounted,

I had a conversation with my youngest brother. . . . I said, [to him], “It’s going to be really hard” and whatever. He told me, he said, “. . . you just need to get in front of them and as soon as they get to know you, you won’t have any issues.”

That was confidence that I didn’t have for myself but I heard it from him and I was like, “Okay. You know what? He’s probably right.”

Three female executives made statements indicating that pursuing a career in leadership required spousal support of relocation and time away from home. For FE 4, pursuit of a high-profile project in which she was interested meant not only relocating but career sacrifice on the part of her husband. As she explained, “We made a family decision that my husband went from active duty to reserve, so that I could move and work on the first space station program, and we moved to Houston.” FE 3, whose job required extensive travel, “was able to work it to where I was gone mostly just Monday through Friday. . . . I’m home [almost] every single weekend.” Similarly, FE 2 explained how her husband “was very supportive of . . . [her] move to North Carolina” when she accepted her current vice president role.

Another way female executives expressed spousal support was in the form of positive engagement in family planning and parenting. For example, about her choice to have a baby while pursuing a leadership role, FE 5 said, “There was never a doubt in my mind though, that once I had a child I was going back to work.” She then expressed how her husband supported her plan. After having children, her husband “was really helpful with the kids. As we got into a routine, for instance, I would leave the house earlier. He

would drop the kids off. So, he picked up a lot of the responsibility and was very proud” of me. FE 3 stated, “My husband . . . actually stayed home with [the kids] the first 5 years, and then he had his own business, so he had flexibility in hours.” FE 2, whose husband also had a high-powered job, recalled having childcare help from her mother:

She still helps me out to this day. Last week I had to go to Florida for a week and my husband was . . . [away working], and she came and stayed with my 17-year old. . . . So, super supportive from my mom, for sure.

Statements made by FE 2 and FE 5, respectively, demonstrated a sense of understanding of the value of the support they were receiving. FE 2 said, “Otherwise . . . , if they don’t support you, then it’s just such a struggle. I think it’s very important to choose your partner well.” FE 5 said, she was “fortunate . . . [to have] married somebody who was very open-minded . . . and [a] wonderful, wonderful man.”

FE 2 and FE 5 also made specific reference to the value of family support with regard to their children. FE 5 credited support from her in-laws as critical. She said, “I had the good fortune of having in-laws who cared for our child, and [so I] didn’t have to deal with daycare, and so that was great.”

Unlike the female executives, male executives did not make direct statements pertaining to support. However, statements made by three male executives can be perceived as examples of spousal support. While describing his career early on and the amount of hours he spent at work, ME 5 related, “There was a time when I was doing 60 to 90 [hours a week] for about a year and a half. My wife likes to remind me about that one.” When discussing his career journey and hiccups along the way, ME 4 mentioned his wife, “So, I think I’m the first one to admit it [i.e., mistakes] happens. If you talked to

my wife, it probably happens more often than she would like.” In the context of extensive traveling, ME 2 mentioned slowing down when he and his wife had a child. These statements suggest that male executives, at least to some degree, had support from their spouses.

Support from the business sector. Six individuals in the study identified receiving support from their bosses. Of her boss, FE 2 stated, “she definitely was a huge supporter for me. And I feel like this role, I would not be in this role without that support.” FE 3 also considered her boss instrumental in securing her current role. She said, “She was actually the one who said, ‘You should think about . . . And then the HR guy seconded it, ‘Oh, yeah. . . . She might be great for this’ so that’s kind of how that happened.” ME 5 received support from a previous boss. In that sense, said ME 5, “I was basically a referral.” Of his bosses in general, he went on to say, “There was no way that I would be where I’m at if I didn’t have bosses that believed in me and were willing to give me opportunities and have challenging assignments.”

ME 2 talked about how his boss provided him assignments that created leadership opportunities. He explained, “So, my boss’s boss came on board after me, and I was assigned to train him to get him up to speed.” Although ME 2 said that “was really weird,” he acknowledged that the assignment later resulted in him securing a management role:

When we were growing so fast, it was like okay, we have two managers and kind of two districts. And we went to five districts and they needed to add another manager. They put me through the interview process, and I got it, which was pretty cool.”

ME 4 received support from a former boss who recruited him for a start-up.

FE 5 received support not only from her boss but also from her college professor, a senior-level colleague, and a headhunter. Her professor, she explained, “had really good connections in the . . . state senate and just opened a door for me there for an interview. And went in for the interview. Was lucky enough to get a job.” She explained that in subsequent positions, her senior-level colleague asked “me to go with her” and then later a boss, after being promoted, “took me with him to his higher level role.” A headhunter recruited her for her current role. Like FE 5, FE 2 and FE 4 also received support from a headhunter; FE 2 had been referred to the headhunter by a customer.

FE 2 spoke generally about the importance of having a sponsor, specifically with regard to career development and subsequent opportunities. She said,

So, I think that having a sponsor within the company is very important. So, you have people that are looking out for you because it's, those jobs that you get are rarely the ones you're necessarily going and interviewing for. It's the ones that they're talking about when they're all in the room and you're not there. And it's important what they're saying about you in that room. And I think that has a lot to do with where you end up going.

FE 2 and ME 2 received support from previous coworkers, and FE 1 and ME 2 referred to support from friends regarding their ascension to leadership. FE 1 was working in a stable tech role when she was asked by a friend, whom she had worked with and had also gone to college with, if she “would think about leaving” her company to join a startup. ME 2 received support from friends on multiple occasions. Regarding his first computer-related job, he recalled, “I think . . . the progression was, I was working at a

grocery store and then a friend of mine introduced me to the local hospital [that] had a night shift computer operator job open.” Later in his tech career, ME 2 had been waiting for a project to wrap when he got a call from a friend who said, “Hey, I’m working at XXXXXXXX XXXXXXXX. You’ve got to come out and interview for this job. It’s awesome.” The interview led to him securing a role within the company. Not much later, ME 2 got another call from a friend which led to acquiring a role that started out as an individual contributor in a nonsupervisory position and accelerated his ascension into the leadership. As ME 2 explained,

The market was starting to roll over, and a friend of mine called me . . . and said, “Hey, come work at XxxXxx.” And then I interviewed there and took a job . . . as an SE [i.e., sales engineer], just an individual contributor.

He subsequently received promotions to “manager, senior manager, [and then] director.”

Mentorship. Opportunities for mentorship were available although varied. Three female executives (FE 1, FE 2, FE 3) reported participating in formal mentorship programs at some point in their careers. When contemplating a career transition, FE 5 specifically sought out a mentor external from her work. As she explained, “I had already started working with a mentor to sort of figure out what did I want to do next and what kind of things did I like to do and not do.”

None of the male executives reported formal opportunities for mentorship. As ME 4 described, the mentorship is informal, if it is available “at all.” ME 3 suggested that in large organizations, formal training programs may “not [be] accessible to somebody who is lower down in the organization.” In startups, where time outside one’s assigned roles is scarce, participating in formal programs is just not feasible. As ME 3 said,

If I come in and told somebody that I wanted to go back to school for a formal program they'll laugh at me. I eat chili, and I was working like 60-80 hours a week on a down week in those jobs. It was not even possible.

However, all the executives in this study did report developing relationships with and relying on informal mentors throughout their careers. Along with ME 4, both ME 1 and ME 3 described mentorships as happening organically. For example, regarding the individual he considered a mentor, ME 1 said, he, like "a lot of people, gravitated to him." ME 3 explained, "Have I had any formal mentorship? No. [Have] I had informal conversations with people? Yeah."

Professional and personal mentors. Participants found mentorship opportunities both inside and outside of professional settings. With regard to mentorship in the professional setting, all but one male executive (ME 2) and one female executive (FE 1) spoke specifically to the role of their boss in developing them for leadership roles. FE 3 noted that there was always at least one female leader in the companies for which she worked and that she was "fortunate . . . to have worked for some of them." FE 4 and ME 4 reported having opportunities to participate in skip-level mentoring, where mentors are sourced from two or more levels above an employee. In contrast to other participants whose mentors were specifically their superiors, ME 3 was more focused on seeking out informal mentorship opportunities with anyone who might be able to share valuable insight. As ME 3 explained, for him, "informal conversations literally . . . [are like], 'Hey, that's a smart guy. Maybe I can go get a cup of coffee a couple times in a given month and see what he's going to say.'"

FE 2, FE 3, and FE 4 spoke about informal mentors in a more personal way. For example, FE 3 specifically spoke about her “colleagues and dear friends . . . within the company who, honestly, were like . . . [her] therapists.” FE 2 and FE 4 talked about their mothers. FE 2’s mother, who also had dyslexia, had a passion for science and was “a late bloomer like me.” Stalled early on with marriage and starting a family, FE 2’s mother graduated with her undergraduate degree when FE 2 was 11 years old. She then went on to complete her master’s degree in chemistry and biology. FE 2’s mother became a high school AP Biology and AP Chemistry teacher. FE 2 went on to describe her as “super supportive” and an “incredible role model.” FE 4 had a similar experience growing up. Her mother earned an undergraduate degree at the age of 50 and went on to complete a PhD, setting a strong example for her daughter.

Value of mentorship opportunities. Although FE 3 did not always find value in the mentorship she personally received, she did recognize the overall value of formal mentorship programs. About them, she said, “We have even more programs today than what we did back then that are much more robust developed programs for women.”

FE 3, along with other participants, also spoke generally about the effectiveness of their mentors and mentorship opportunities. FE 1, FE 2, and FE 3 suggested that formal mentorship programs aided in their leadership development, and all of the executives attributed at least some of their career and leadership development to the informal mentorship they received. ME 1 described his boss/mentor as “kind of a Yoda as a leader.” FE 2 said she “would not be in this role without that support” and was grateful to have the opportunity. FE 4 and ME 4 pointed out the importance of skip-level mentoring to leadership development.

ME 2 and ME 5, neither of whom had had formal mentors, expressed regret in not seeking out mentors and recognized the potential value of mentorship. ME 2 said, “It’s probably the biggest thing I look back on and really wish I had.” He acknowledged that having a mentor likely would have helped him avoid a lot of the “trial by fire” he experienced. ME 5 shared, “It was a mistake I made early in my career.” He admitted that having a mentor “would have probably been helpful.”

Participants who had had mentorship opportunities identified specific benefits of those opportunities with regard to their leadership development or ascension. FE 1 identified having “a chance to lead” as a critical factor in becoming a leader and suggested that mentorship both “helps you refine your craft of leadership” and shapes “how you lead or how well you lead.” ME 5 also referred to having “really good bosses that helped develop me... [and] gave me opportunities.” FE 3 highlighted how helpful it was to “bounce things off” her mentor, and FE 2 indicated that the mentor’s focus is “to get [you] ready for when that opportunity comes up” by helping you navigate your surroundings successfully. She gave an example of a formal mentorship program offering in her current company, one in which she herself participates. Of that program, she said, “We have our high-potentials [i.e., up and coming women] that we bring together. We do a lot of interviewing with them to get them ready for when they have these opportunities.”

ME 3 and ME 4 gave more specific examples of the benefits they gained from their mentors. As ME 3 explained, his mentor taught him about delegation. To him, his mentor said, “‘You can’t do the work of the entire team. . . . That’s stupid man. That’s not why you are running a team. Your . . . [job] is to go make the other people

successful.” ME 4 told a similar story. As he described it, he had been very narrow minded in his approaches, a condition that left him struggling and extremely frustrated. When his manager noticed his frustration, he posed two questions. The first was, “Do you want to be right, or do you want to be successful?” After ME 4 replied that he wanted to be successful, his boss posed the second question: “Have you ever thought about the fact that maybe, just maybe, there is a different way of doing things?” ME 4 went on to say that short conversation “was a game changing conversation . . . because it completely changed my attitude and my approach.”

Networking. The data showed that leadership opportunities were presented to the participants through the relationships they built with people both inside and outside of their workplaces. Some of those relationships may have existed in the form of mentorships. With regard to relationships inside their workplaces, four participants (ME 2, ME 3, ME 5, FE 3) credited their boss, two (FE 2, FE 5) cited colleagues, and one (ME 2) credited his leadership team for opportunities for leadership ascension.

Leadership opportunities that developed through relationships with people outside their workplaces were presented to one participant (FE 2) from her customer, one (FE 5) from her professor, four (ME 1, ME 2, ME 4, ME 5) from friends, four (FE 2, FE 3, FE 4, FE 5) from head hunters, and two (FE 4, FE 5) from joining a board.

Other participants (FE 1, ME 3, ME 4) created their leadership opportunities through their own self-advocacy. For example, FE 1 pursued a master’s degree specifically to build her network. She said, “I’m paying for a network. Yes, I want to learn some hard skills, but really what is going to get me a job is the people that will be in

my class.” Similarly, ME 3 sought out opportunities to network with anyone who could provide insight to him.

Availability of leadership opportunities. For four participants, leadership opportunities became available to them because they sought them out. ME 5 felt his career had “dead ended,” and, as previously noted, FE 2 expressed interest in leaving her technology position in a food company to seek a position in a technology company. FE 4 specifically sought larger leadership responsibility. FE 5, ME 1, ME 2, and ME 5 all mentioned pursuing other opportunities due to dissatisfaction in their current roles or the direction of the organization.

For other participants, leadership opportunities were related to personal characteristics of the participants. Those characteristics are discussed here. Additionally, the characteristics of the leadership opportunities afforded are presented.

Personal characteristics. Comments made by ME 2, FE 4 and FE 5 indicated they perceived they got new leadership opportunities because they had been successful in the past. For example, ME 2 pleased his leadership team by successfully completing a project ahead of schedule. Because of that success, he was subsequently given increased responsibility even though he did not deem himself “really ready to do that yet.” FE 4 said that she performed “at pretty much the highest level” which resulted in “opportunities like going into doing some M&A [i.e., mergers and acquisitions].” While working for the government, FE 5 pioneered a groundbreaking technology project at the state level. She explained that that “resulted in . . . [her] being appointed the first chief information officer” and led to her becoming “a presidential appointee, confirmed by the Senate . . . to do work that was very similar to what [she had done in her state].”

For ME 4, leadership opportunities presented themselves because he was knowledgeable of the overall business. He explained how he was asked to take over a division that was not his core competency but an area where he intersected frequently and was “kind of . . . unofficially a member of . . . so it wasn’t a huge stretch when someone asked . . . [him] to take over marketing.” He added that businesses “are looking for leadership to kind of help guide them in the right direction to help them achieve product market fit as well as business growth.” He credited his broad understanding of the end-to-end business process of building, marketing, testing, and launching a new product for generating not only this leadership opportunity but others as well.

The data showed that three male executives (ME 2, ME 4, ME 5) and one female executive (FE 3) were afforded leadership opportunities because they were personable. ME 2 summarized that he “had some really cool chance encounters with my leadership . . . that just played really, really well.” In securing one position he stated, “I met with the team there, and everything just kind of clicked.” About being promoted to management, he reflected, “Really, I think he just liked my style—the way I kind of taught and described things and made it easy to understand.” ME 5’s comments also showed that career growth opportunities materialize with personable interactions. ME 5 shared, “When my career was really advancing, I was with a boss that I really connected with.” During the interview process for his current position, ME 5 again said he and his potential boss “just hit it off instantly.” ME 4 said, “I would say it opens the door to have a conversation where they want to get to know you as the person and creates that interest.”

Opportunity characteristics. For participants in this study, leadership opportunities varied based on the type of business in which the participants worked. ME 3, who has worked in both public and private domains, shared his experience of leadership opportunities between those domains. He said that it “is human” in the corporate (i.e., public) domain that leaders “took a long period of time systematically climb[ing] the ladder,” whereas in startups (i.e., private domain) “you’re playing a game” where “the difference is the rules.” All male executives and one female executive specified leadership opportunities came from founding or joining a startup company. Startups appeared to have a distinct characteristic that in starting your own business, you can choose whatever title you want, and you have 100% autonomy over creating your leadership team. Three male executives (ME1, ME 3, ME 4) were co-founder/founder of a startup, and four participants (FE 1, ME 1, ME 2, ME 5) joined startups. FE 1 was one of eight people recruited in the early phases of a startup. Of that experience, she said, “It was kind of like part of the core leadership team” while ME 1 said, “the role I assumed there was the VP and GM on products [general manager].”

In addition to the type of business in which the participants worked, attrition and company growth (other than in the situation of startups) also were indicated as sources of leadership opportunities across all domains. The reasons for attrition and growth varied. FE 3 filled an open position vacated by her boss and later another position vacated by her boss’ boss, FE 2 filled a new position as the result of company restructuring, FE 4 filled a quota-driven position proposed by state legislation promoting women, FE 5 filled a position that was created in the wake of a national disaster, and FE 5 and ME 4 filled positions created by the need for a manager in new organizations within their companies.

ME 4 was assigned to the lead position building a new product, and ME 2 filled a newly created management position to match the company's expanding customer base. Growth opportunities for ME 1, ME 3, and ME 4 emerged as the result of company acquisitions. ME 1 explained that he "originally [ended up] in the director role" when his company was acquired. Similarly, ME 4 stated, "I stayed with the . . . [acquiring company]. That's where I got a lot of leadership exposure to where [at] one point I was managing over 120 people [with] \$120 million P&L [profit and loss]."

Barriers to Leadership Ascension

The data showed participants faced two distinct barriers to leadership ascension: lack of leadership support or interest, and self-selection. In some cases, the barriers were self-identified by the participants either in reference to themselves or to successful leaders in general. In other cases, the barriers were inferred based on participants' statements.

Lack of leadership support or interest. Three participants described situations in which they were either discouraged from pursuing a leadership opportunity or were intentionally passed up. ME 1, who experienced lack of leadership support with regard to his ascension to leadership, shared how he had developed his own opportunity and pitched it to his boss who thought the idea was interesting. However, ME 1's boss told him he could not work on it because ME 1 needed to focus his energies on the project at hand.

FE 5 and ME 2 shared stories in which they experienced lack of leadership interest. FE 5 was nominated to replace "somebody else who was going on to a higher level." However, her nomination was rejected because "When it got to the governor's

office to somebody who was very political, they basically came back and said, ‘No, she’s okay working here, but I don’t think we want . . . [her] in that position.’ Similarly, ME 2 was rising through the corporate ranks and was promised the position vacated by his boss. He found out that a peer was also promised the same role. Neither of them secured the promotion. He explained,

We were set up to take the role. And then the director that was running that job started to kind of have these well-you-guys-have-moved-up-the-organization- too-fast conversations with us. Like, “You don’t have enough tenure. You don’t have enough years in the seat to be able to really go through this. We really need somebody that’s a stable hand that knows the stuff that’s not going to make mistakes.”

ME 2 added that the experience really threw him “for a loop.”

Self-selection. Five participants self-selected to not take leadership opportunities. Although their reasons varied, most of them were related to family in some way. FE 4 shared that she put aside higher aspirations to earn a doctoral degree due to “family and work issues.” FE 2 chose to put aside her leadership journey to experience being a stay-at-home mother. However, FE 2 did return to the workforce within 6 months of making that decision, stating that being a stay-at-home mom was the “the hardest job in the world.”

FE 2, along with FE 4, also made conscious decisions not to pursue their leadership journeys so that they could support their spouses’ careers. FE 2, who left her job to move across the globe for her husband, said, “I really thought I kind of stunted my career by making that choice to go to Europe.” She went on to say,

If I hadn't left the company, I would have, I'm not sure where I would be today, but I certainly would have been a vice president much earlier because I was on that track. So, I think some of the choices that I made actually probably slowed down where I got to.

Other participants self-selected to not take leadership opportunities to ensure they were able to be with family. ME 1 shared he "settled at the director level" for a while and described the conflict of balancing work and home life as "very hard" and an "emotional pain" where he was not "able to participate in a really structured daily way with . . . [his] kids until the weekend." He found himself making "explicit decisions" regarding the roles he took on such that he was present with his family to avoid regrets.

FE 3 shared that while her personal life was in "chaos," she chose to keep her work life stable. She explained,

I don't regret making the really hard choices along the way. The pause that I took staying in the same role for a while to have my kids, I knew I wanted a family, and I wasn't willing to give that up for a career or for work or for anybody.

Similarly, ME 2 found himself renegotiating his work structure to accommodate his expanding family. When his "wife had a baby," he decided he needed to "work from home" and reduce travel commitments.

Motherhood as a Challenge to Leadership Ascension

Motherhood as a challenge to leadership ascension emerged as a concept distinct from barriers to leadership ascension. Although one male executive (ME 1) expressed it was a challenge to "create a balance in work and family" so that you don't "look back and go, 'Look what I missed out [on],'" motherhood emerged as a unique challenge to

leadership ascension for women. FE 1 and FE 2 suggested pregnancy itself was potentially a career roadblock. An expressed factor for FE 1 joining a startup was that she had not yet started a family; however, at the time of this interview, FE 1's company had been acquired, and she revealed she was pregnant. After completing her transition plan, she would soon be looking for new work. Implying that she may not be as attractive a hiring candidate because she is pregnant, FE 1 said that pregnancy "just complicates all the timing so much more." FE 2 suggested that being pregnant reduces the likelihood of securing a more desired position. She hesitated to attend an interview simply because she was 3 months pregnant, assuming her condition would disqualify her for consideration. Despite her concerns, however, she got the position for which she had applied.

FE 5 stated having children did not impact her career; however, she was strategic in planning family expansion. After being passed over for a promotion, she decided, "Okay, it's time now to have a second child." She said to her "husband, 'If we're going to have two kids, let's do it now. Let's get it out of the way.'"

Balancing a family with motherhood also presented challenges. Female executives described the dual role of mother and career woman as "hard" (FE 2, FE 3, FE 4) and a "sacrifice" (FE 3). FE 3 used the word *sacrifice* 5 times throughout the interview describing the intersection of work and family. She said she has "no regrets" in her choices and she is "really proud" that she was able to balance work and family even though she knows she could have gone "gung-ho career-wise" at the expense of her family. FE 4 described her life in dual roles as "busy."

Theme 3. Successful Leaders Share Common Characteristics

The data showed a range of common characteristics of successful leaders. Those characteristics are discussed in this section categorically. Some of the characteristics were self-identified by the participants either in reference to themselves or to successful leaders in general. Other characteristics were inferred about the participants from their statements.

Embrace Early Opportunities to Practice Leadership

Four participants mentioned having had opportunities to practice leadership when they were young. FE 2 had participated in sports and suggested “that that’s where a lot of my leadership came from.” Similarly, ME 1 attributed his leadership skills to having been elected captain of his football team. He suggested that his having been elected despite being smaller in stature in comparison to his peers was evidence of his perseverance. FE 4 and ME 5 participated in scout programs. Although ME 5 said he “didn’t really think of it as a leadership thing,” he “was a patrol leader in the Boy Scouts and eventually became an Eagle Scout.” FE 4 explained that she “had a lot of leadership positions in the girl Scouts growing up.” As part of the “evolving leadership” aspect of the program, she became a camp counsel during her college years and later served as a team leader, trainer, troop leader, service unit leader, and then director.

Seek Industry-Related Knowledge and Skills

Participant responses pertaining to industry-related knowledge and skills varied but appeared to be either general in nature or related specifically to technology, math, or science. Referring to knowledge in general, participants described themselves as having “very broad experience . . . [and] exposure” (ME 5) and being “overall well-rounded.”

ME 2 talked generally about how he wanted to become a knowledge expert; he “just wanted to know everything” and stay “cutting edge.” FE 3 realized it was “important to understand some of the fundamental[s of the] business.” Like “ME 5, FE 3 described herself as well-rounded. ME 1 talked generally about how having knowledge wasn’t reliant on formal education. He said, “Some of the most talented people I’ve worked with never completed a college degree.”

FE 4, on the other hand, directly acknowledged that her “skill at computers was, and still is, very strong—stronger than normal.” ME 4 not only acknowledged that he knew that “space [technology] really, really well” but also that he knew “all the players.” ME 5 was aware he was “appreciated . . . [for his] technical ability.” He was motivated by being the person about whom his bosses said, “Okay, yeah, this is the type of person we need . . . [here] that’s going to embrace new technology and bring in new technology into the company.”

The majority (60%) of participants liked, were curious about, and/or did well in math and science during school. While discussing early education, more than half the participants (2 women and 4 men) specifically talked about their exposure to, and affinity for, math and/or the sciences. FE 2 shared that because of her dyslexia and the different way her brain works, she had mixed experiences with math.

With people with dyslexia, [it] is usually the early math, we’re not good at, but it’s the big math when we get into algebra and calculus and science and those types of things, is really where our brain kind of fits.

ME 1’s educational focus was both technical and math oriented from an early age. ME 3 recalled being very drawn to the physical sciences “very early on” and said he did very

well in all forms of math and science. ME 4 said he “just happened to like Math,” and FE 4 talked about her love of calculus that has stayed with her throughout her career. She explained how “there were really no AP courses back then [when I went to high school], so I took calculus and . . . [thought that’s where] technology is going. Wow! This is really cool.” Similarly, after taking classes in college, ME 2 realized he “really liked it [i.e., math].”

Demonstrate Commitment

The data indicated that successful leaders are committed. In some instances, participants spoke about commitment with respect to others. Participants also described themselves as committed (e.g., ME 1) and demonstrated that they were committed. For the purposes of this discussion, reference to or demonstration of dedication to the company, responsibility, performance orientation, passion, taking initiative, and life-long learning were considered evidence of leadership commitment.

Dedicated. None of the participants spoke about dedication with respect to others. However, they did either speak directly about dedication with respect to themselves or demonstrate that they were dedicated. Three participants spoke directly about the level of effort they were committing to their companies. They made comments such as “I worked my ass off” (ME 2) and “you’re working really, really, really hard” (ME 3). ME 1 spoke about the level of commitment as a “sacrifice.” In reference to her family, FE 3 said, “I know I would do anything—I’ll go work whatever I have to work—to be able to provide for them.” FE 5 made a similar statement suggesting her dedication was relative to her financial need. She said, “My income was 50% of our income, so we needed my income.

And so I just need[ed] to do the best I could do every single day because there was no safety net for me.”

The majority of the participants (70%) demonstrated they were committed to their companies. They talked about making “10 and a half hour flights each way, to Sao Paolo [and] to Buenos Aires” on a weekly basis (FE 3); working Thursday, Friday, Saturday nights. . . . from like 5:00 PM to 7:00 AM” (ME 2); and “working like 60-80 hours a week on a down week” (ME 3). Similarly, ME 5 said, “50 to 60 [hours] was pretty standard. And then there were projects. There was a time when I was doing 60 to 90 for about a year and a half.”

Participants’ dedication also was exemplified through their commitment to doing what was necessary to get the job done. Whereas FE 3 generally stated that “you need to hustle,” FE 2 explained her situation in more detail. She said, “I was programming the phones. I was installing them. I was running cable. I mean, I was doing everything. I would train the people on how to use them.” Comments made by two participants demonstrated dedication to positions thrust upon them. ME 4 talked about being “placed in those positions” and having to fulfill roles. FE 1 said, “There’s work to be done and you already have two to three jobs, but there’s no one else to do this new job, and guess what, you get to do it.” FE 3 acknowledged that she was doing as much as she possibly could. She said,

I’m going in every day and I’m going to give 100%—the most that I can give—that day. If that isn’t enough and they want somebody else to do this or somebody else can do a better job, then I shouldn’t be doing this job. I should be doing something else.

Other participants demonstrated commitment through perseverance and tenacity. Participants who demonstrated perseverance made general comments reflecting this characteristic. They made statements about their jobs being “physically very taxing” (FE 3), a “struggle” (ME 4), “hard, [and] . . . incredibly brutal” (FE 3). FE 3 shared,

Oh my God. I totally broke down crying. . . . The first 3 months I cried every single Thursday. Every single Thursday I had a complete and total breakdown because it would just mount and mount and then it was like my release.

In spite of these challenges, the participants persevered and got their jobs done. As ME 5 described,

There was still a lot of people running around and just figuring out how to get things done and, “Okay, we have a deadline, so we got to do this. . . . We got it done by just people being heroes and just making sure... People were doing a little bit of everything.

ME 4 made a similar comment. He said, “It comes down to come hell or high water. You have to execute. You have to make it. And then, while you’re doing that, you’re doing what needs to be done so that it becomes a sustainable effort.”

FE 2 “managed to get . . . [herself] through school” despite having dyslexia, and ME 1 and FE 5 worked their way through school while under extreme pressure at work. FE 4, a nursing mother of three young children married to a husband who was deployed in the Gulf War, worked with complicated IT projects while studying for her doctorate in electrical engineering. She was successful in all of her endeavors. FE 3 shared how she encouraged herself to persevere. She said to herself, “Damn it. This is going to be a better week.”

Responsibility. The data indicated that successful leaders are responsible. In some instances, participants spoke directly about taking responsibility (ME 1, ME 4). As ME 4 explained, “There is a sense of responsibility and duty that needs to be taken seriously.” He added,

It’s a burden . . . [that] is on you to do the stuff that nobody thinks about doing or wants to do. . . . You’re the guy who has to worry on Sunday night, you’re the guy who has to make sure payroll happens come hell or high water.

Participants also described themselves as responsible (FE 5, ME 5). A statement made by FE 4 demonstrated she felt a great sense of responsibility even early on her career: “You’re going to get out of school and you’re writing code and you know [if] you screw up, you can take a damn company down.”

Performance and goal oriented. None of the participants spoke about being performance or goal oriented with respect to others. However, they did either speak directly about being performance or goal oriented with respect to themselves or demonstrate that they were performance or goal oriented. For example, FE 4 said her boss “considered [her] . . . a rock star,” and FE 3 said, “I tend to have super high expectations on myself on what I’m expecting for us to deliver.”

Other participants talked in terms of meeting goals and the personal expectations associated with doing so. FE 5 explained,

What it meant for me as an at-will employee, which I always understood, if somebody decides . . . So-and-So’s nephew might need a job, I could always lose mine. What it meant for me . . . [is that] I better do the best damn job I can do every single day.

FE 2 also spoke about goals more generally. She said, “a number of cities that are up and are coming up [need] . . . to get up before the end of the year.” FE 3 talked more specifically about “objective numbers;” and FE 4 gave an example with definitive numbers demonstrating the success she had reducing the rate of voluntary turnover at her company.

Passionate. One participant, FE 5, spoke about passion with respect to others. She said, “I had the good fortune in all three administrations to work for people who were incredibly . . . passionate about the work they were doing.” Participants also described themselves as “passionate” (FE 2, ME 1, ME 4) and “enthusiastic” (FE 5) and referred to their “interest(s)” (FE 2, ME 1) and being “curious” (FE 3, ME 2) or having “curiosity” (FE 4). FE 1 described her work as something that was “a core part” of herself—she said, “It’s very much embedded into everything I am.” FE 2 called it “rewarding” and made a similar statement when she told a story about her attempt to be a stay-at-home mom. She said,

I took 6 months when we were in Europe and I was like, ‘Oh, I’ll play tennis every day’ . . . and [then] I was like, ‘If I have to play tennis one more time, I’m going to die.’ So, I really love working. I feel like I will always do something. I just, I can’t imagine not having some type of work in my life.

ME 1 spoke of his passion in terms of “the pleasure you take [and] the satisfaction you take” in being successful.” ME 4 “loved every aspect of it,” and ME 2 “really enjoyed” working in technology because it was “fun” and he could “play with toys . . . [and do] all this really cool stuff.” As he described it, working in high tech “was so engaging, and I was having a blast doing it.” He just “wanted to take it all in and do it all.”

Comments made by other participants demonstrated they were passionate about their work. Referring to dedicating themselves to working in demanding high-tech jobs, participants talked about having to “really want to do it” (ME 4) and how much they “loved their time” (FE 5) in particular jobs.” FE 3 expressed passion for her job when she said, “It’s a massive ego boost because they all love me there. It’s nice to go somewhere like, ‘Wow. I like coming here. I’m actually appreciated.’” ME 1 clearly was passionate about working in high tech; when he was growing up and “computer science was . . . in its formative years,” he used his own money to buy a Commodore 64 computer so that he could expose himself to the technology. After starting his first job in the tech industry, ME 2 found himself “getting really sucked into the work” and “enjoying” what he was doing.

Ambitious. No participants spoke directly about ambition. However, their statements demonstrated they were ambitious. Comments from seven participants suggested they were ambitious in general. ME 2 wondered how he could “become a person who can be at the top of their game,” ME 4 referred to his “initiative” with respect to his leadership journey, and ME 3 spoke generally about the importance of taking steps to achieve goals. He said,

You [have to] seek it out. It’s not given to you. It goes back to the whole thing. If something is interesting and important, you’re going to go reach out and take it, or ask for it, or seek it out.

FE 3, who talked about returning to work after having her fourth child said, “I came back from maternity leave, and . . . I was like, ‘Okay, I’m ready. I can take on

something else now.” She also described the “tremendous” and “self-inflicted pressure” she put on herself. As FE 1 described,

I love going to a place where when I start, I’m like, “I have no idea what is going on or what to say.” I love that feeling and that challenge of just the simple act of understanding a new industry . . . [It] is really invigorating to me.

Other participants demonstrated they took initiative in their jobs, such as proposing or developing new projects or programs (ME 2), taking on challenging assignments (FE 1, FE 3, ME 2, ME 3, ME 5), seeking out new positions to broaden their experiences (ME 5), or starting new companies (FE 4, ME1, ME 2, ME 3, ME 4), often with fewer people than realistically needed (ME 1, ME 2, ME 3, ME 4). ME 4 told a story about how he took initiative to excel in his work. When his boss had asked him to find out prices of certain stocks, ME 4 recounted,

I gave him that. I gave him how the market overall was performing. I gave him how the competitors of those eight stocks were performing. I gave him the latest news. I gave him upcoming earnings release and analyst polls and some recommended actions. I don’t know why I did, but I just felt that, giving him just a stock price may not be adequate.

The majority of participants demonstrated initiative with regard to learning in some capacity. In all cases, the participants indicated their learning was connected with potential for generating opportunities for advancement or company growth. The details of these learning experiences and learning experiences driven by factors other than personal initiative are discussed in the next section.

Lifelong learning. None of the participants spoke about lifelong learning with respect to others. However, participants did recognize the importance of learning for themselves. As FE 4 explained, in high tech, “you have to be a lifelong learner, or else you’re left behind.” In some cases (FE 3, ME 3, ME 4), learning was necessary to accomplish tasks to which the participants were assigned. FE 3 also recognized the need to learn and acknowledged that it was “going to be really, really hard.” Participants FE 2, FE 3, and FE 5 spoke generally about learning in terms of personal and professional experiences they had during their journeys to leadership. Three participants referred to learning from their mistakes (FE 3, ME 2, ME 3, ME 4, ME 5). FE 3 said, “I would say from a failure standpoint it’s definitely learning from your own failures as you go but also learning from the failures of others.” In comparison, FE 5 and ME 2 told stories that demonstrated they learned from experiences.

For other participants, learning was about acquiring new industry-specific knowledge (FE 1, FE 2, ME 2, ME 4) or “bettering” their skills (ME 3, ME 5) in order to be able to successfully complete jobs or further their positions in their companies. For FE 1, ME 2, and ME 4, the purpose of learning was to improve the effectiveness with which they did their jobs. FE 1 explained that to learn how to better manage her employees, she took “a lot of personality tests.” FE 2 learned a new language to make herself more marketable. All of the participants had completed bachelors’ degrees, and all the female participants and one of the male participants (ME 3) had completed their master’s degree.

Two participants spoke directly about applying the knowledge they learned during their leadership journeys. ME 2, who said he “always read books and leadership books

and best practices around those,” took the “self-taught or self-read” knowledge he acquired from reading “and then applied” it. He shared one specific experience:

So, it was that first chance where I could take real education, real knowledge that I’ve spent 4 years building up and turn it into a project and have that project come out of it, and it actually gets used in the world.

According to ME 3, application of knowledge “comes from marrying the state of [the] art from an academic point of view with the what-is-possible in the practical world.”

Display Strength

The data indicated that successful leaders demonstrated strength. In some instances, participants spoke about leader strength with respect to others. Participants also described themselves in terms of leadership strength and demonstrated that they were strong leaders. For the purposes of this discussion, reference to or demonstration of competency, confidence, decisiveness, management of failures, and determination were considered evidence of leadership strength.

Competent. One participant, FE 5, directly referred to working for administrators “who were incredibly competent.” She later suggested that those in high-level leadership positions “really need to be people who understood [sic] the business of the organization, the business processes of the organization, and envision the future for the organization.” FE 5 also referred to herself as “intelligent.” FE 3 included herself in a group of “super smart” people.

Other participants demonstrated their competence. ME 2 talked about “knowing the right questions to ask.” ME 5 made a similar comment in the context of “assessing the organization.” Comments made by other participants demonstrated their knowledge of

technology (FE 1), knowledge of a particular company (FE 3), and their business savvy in general (ME 1, ME 4).

Confident. One participant, ME 3, directly referred to “confidence” three times with respect to the important characteristics of leaders. Among other things, he said, “another part of that job [being a leader] is to project confidence that you may not internally feel.” Other participants made similar, albeit less direct, statements. For example, ME 4 said, “Leadership is about being comfortable being uncomfortable,” and ME 3 described self-esteem among leaders as having “confidence in spite of doubt.” FE 1 talked about how important it was for leaders to “voice . . . [their professional opinions] and advocate” for themselves. Although referring to herself and not to leaders in general, FE 1 also alluded to the importance of having confidence in oneself. She explained that after having been “dismissive of . . . [her] own intuition” once, she would never do it again.

Participants also made statements about their own confidence. Although some participants (FE 1, FE 2, FE 3, ME 2, ME 3, ME 4, ME 5) indicated or demonstrated that they had at some point in their careers experienced self-doubt, more than half of the participants talked about or demonstrated they had confidence. ME 5 spoke generally about how his experiences “gave . . . [him] confidence that . . . [he had the] capability to do things.” ME 3 said he specifically, needed to remain “technically confident, because that’s kind of a prerequisite in the technology world.”

Statements made by other participants also demonstrated they were confident. FE 2 demonstrated confidence in herself overall, describing herself as “very talented” and having good “self-esteem” (FE 2). Other participants described themselves as “bold” (FE

1), “direct” (ME 4), and “deliberate” (ME 3). Referring to whatever was required of her, FE 3 knew that although “it was going to take . . . some time and it was going to be really, really hard,” she also knew that she “could figure it out.” The confidence she had in herself afforded her the opportunity to feel comfortable taking risks: “Like what’s the worst that’s going to happen? . . . The reality is I’m in technology. There’s a lot of jobs out there in the world . . . Worst case, I need to find another job.” Participants also demonstrated confidence specifically in their knowledge of technology. They said they just “knew it” (ME 5) “really, really well” (ME 4).

Regarding how participants developed their confidence, FE 5 said “I guess I just never screwed up.” FE 3 spoke more in the sense of accepting past experiences as part of who she is. She said, “I don’t believe in regretting. I think everything led me to where I am.” Others spoke more in the sense of advice giving. FE 1 advised that at some point, “you are going to feel ill prepared or maybe not ready or like you’re not the right person in some way. . . . You just have to work through that and learn and grow as you do.” Other participants made comments about believing in oneself, for example, “You have to believe that you can be good at it” (FE 4), and “You have to feel like you can do this better than anyone else” (ME 4).

Decisive. According to ME 3, “There is incredible ambiguity in any decision. The further up you go, the more the ambiguity there is and less clear that a decision is, right or wrong.” Despite the idea that higher level leadership inherently includes ambiguity in decision making, participants in this study did either describe themselves as decisive or demonstrate decisiveness. Often, participants’ comments about decisiveness were connected to taking action and being able to make difficult choices.

Participants explained that “at the higher leadership level, . . . it’s important . . . to be able to make smart decisions” (FE 3). Sometimes, being able to make smart decisions means taking time to generate and think through options (FE 1, FE 3). However, “inaction is worse than taking action, even if it’s not always the right thing to do” (ME 5). Of his inaction in a previous position, ME 5 said, “Management would have been more tolerant of me making changes and it not working out than they were of inaction.” The reason for this, said FE 5, is that “once you’re exposed [to a situation], then you have to make something of it.” ME 4 thought along the same lines. He said, “Sometimes you have to make a call, with less than perfect information, and less than perfect data.” Regarding taking action in general, FE 3 recognized that although change takes time, it is important to “push for things to move faster.”

When describing herself, FE 1 said, “I am not afraid to be decisive and make hard choices and take action.” Similarly, ME 4 said, “I think it’s just in me, and that if I say I’m going to do something, I would do it.” FE 4’s capacity for “getting things done . . . got [her] promoted” at a young age. In less direct examples, FE 3 talked about how proud she was to have shown restraint and made a smart career decision. Other participants made statements demonstrating their capacity for decisiveness making career choices (FE 1, FE 5, ME 2, ME 3).

Manages failure. Participants indicated that part of the “leadership journey is your failures and how . . . you handle your failures” (ME 2). It is about “deal[ing] with the consequences of not making progress or outright failure” (ME 1). Overall, participants perceived that an “important part of the learning process” (ME 5) is

managing failure successfully. What that looks like is “being able to make some mistakes and learn from them and fix them quickly and then go on” (ME 5).

According to the participants, it is important to remember that “half the time in your life you’re wrong.” Therefore, leaders should not “be afraid to say . . . [they] made a mistake, [and] the sooner . . . they can do that, the better” (FE 4). Additionally, it is important to “apologize” (FE 4, ME 2).

Being allowed to fail is a critical part of the leadership journey because if “you’re allowed to fail, you’re allowed to learn” (ME 3) and “if you don’t make mistakes, you’re not trying to get better” (ME 4). “From a failure standpoint, it’s definitely learning from your own failures as you go, but [it is] also learning from the failures of others that you see around [you]” (FE 3). Although leaders may make mistakes, it necessary to have the support of senior leaders (ME 4, ME 5) who are “willing to give . . . [their employees] opportunities and . . . challenging assignments” because people “learn more from doing and also making mistakes than . . . [they] ever will from a book” (ME 5). However, in order to make meaning from their mistakes, people need to be reflective and be able to say, “Okay, I was wrong. And what’s the data? How do you learn from that? What’s the sort of internal learning” (ME 3)?

After recognizing one’s mistake and accepting failure, it is important to be able to move forward (ME 3, ME 5). First, it is essential that leaders forgive themselves for their mistakes “without judging” (ME 1). They must make a conscious decision to “not get too hung up on the fact that . . . [they were] wrong” (ME 3). As ME 3 exemplified, “If I’m wrong, I’m wrong. I’m going to be okay with that. That’s the path.” One just has to recognize that “failures don’t define you unless you let it” (ME 2). In that regard, ME 2

suggested that leaders who “fail early and recover probably end up . . . [with greater] resiliency.”

The second thing leaders must do in order to move forward after failure is to refocus in “small increments and show tangible incremental small progress until that [overcoming failure] just becomes a way of life” (ME 1). A lot of it has to do with immersion and how you connect with trying to solve the problem” (ME 1). It is about resetting your focus (ME 2) and encouraging yourself to “go on with the next thing” (ME 3). One way to “calm down the frustrations . . . [and] go back to getting rid of that emotional distraction [is] to keep pushing on trying to find a solution” (ME 1). “Ask[ing] for help or asking questions” (FE 4) can in the refocusing process.

Determined. Participants in this study talked about and demonstrated determination. FE 3 spoke directly about being determined to succeed in her job. She said, “I think it was determination at some point too where it’s that grit that you just are like, ‘Okay. I didn’t die. I didn’t get fired, so here we go again. Let’s try again. This is going to be a better week’” (FE 3). ME 5 expressed a similar sentiment. He said,

I came into work every day thinking, “This is my last day. I’m going to get fired.”

It made me want to really work hard and do the right thing, and so that was my motivator and that’s what I used to drive me . . . that desire to do right by people and make sure that I was doing the right thing. (ME 5)

Other participants demonstrated their determination through personal stories.

Three participants referenced role models in conjunction with determination. FE 2, who has dyslexia, described the challenges she faced in school and having to make accommodations to overcome her learning disability; she also spoke of watching her

mother, who also has dyslexia, overcome similar challenges and do so without family support. Her mother, she said, was an “incredible role model for” her and helped mold her sense of independence. FE 5 also embodied a strong sense of independence. She grew up in traditional household where her father worked while her mother tended to the home and children. When FE 5 was 16, her father abandoned her mother. Her mother was “devastated.” She shared that her mother’s “whole life was around being a housewife—her social life, everything. And she actually committed suicide later that year for that reason.” This experience “was formative in . . . [her] life” such that after losing her mother under these circumstances, FE 5 was determined that she would never be dependent on her own husband. This determination drove her to make calculated career choices that gave her leadership opportunities.

ME 1 learned determination, in the sense of perseverance and tenacity, from his father. When describing his childhood, ME 1 spoke about how his father was regularly absent during his time in medical school. However, he recognized

the core lesson was that Dad is working. He’s working really hard, and you could see him kind of mentally enduring the struggle and fighting the struggle. It was a really tangible thing to witness as a child even though you didn’t really know what was going on. You just knew that someone was pushing a rock uphill and making progress on it periodically, and they were very happy about that when occasional breakthroughs were happening, and that made life all the much better.

Having witnessed his father persevere gave ME 1 a similar sense of dedication. He did acknowledge though, that as a leader, perseverance is something that must be practiced

“very, very consistently” and that there is a balance that needs to be achieved in life in order to minimize regrets.

ME 4 demonstrated determination in the face of strong cultural and parental expectations for his career. He explained that in an Asian-American family, “you’re either a doctor or lawyer and anything else, you would be a disappointment that brings shame upon your country.” ME 4 recalled “the look of disappointment in my parents’ eyes” when he told them he wanted to be a clinical psychologist. His parents pushed him to compromise and “go to med school . . . [to] be a psychiatrist.” However, ME 4 knew that he could not fulfill his parents’ wishes. Even after college graduation, ME 4 said his decision to not pursue a predestined career “was very hard on them” for at least “5 or 6 years out of school” because his parents continued to believe he would go back to medical or law school. Although ME 4 said he is unsure his parents understand what he does in business and tech, he does think they are “more supportive now.”

Exhibit a Capacity for Problem Solving

Another characteristic of successful leaders that emerged from the data was that successful leaders are focused on problem solving. None of the participants spoke about problem solving with respect to others. Multiple participants (FE 1, FE 2, FE 3, FE 4, ME 1, ME 2, ME 4, ME 5), however, did refer directly to solving or addressing “problem[s]” or otherwise “fixing” or “figuring” things out when talking about themselves and their experiences. ME 2 expressed excitement about wanting to “solve all these problems.” Similarly, ME 5, “liked fixing problems, no matter what they are.” He described his infinity as “a natural inclination.” ME 4 specifically liked the “figuring out everything . . . that go[es] into a startup.”

For some participants, problem solving is not only enjoyable (ME 2) but a necessary skill for success because in high tech, it is “definitely very much a sink or swim type of environment” (ME 4). “You get to figure it out and be successful or fail” (FE 1). In a startup especially, “you have to succeed. You figure it out, and you end up doing these roles, not because someone groomed you for it, but because you have to, and they didn’t tell you, but you’re in it” (ME 4). ME 1 suggested that “how you engage that problem and immerse yourself [in it] is really the essence of how you can solve problems.”

During their interviews, all of the participants gave examples of their capacity to problem solve. When talking about how they solved problems, participants talked about or demonstrated their capacity to think independently and creatively. ME 2 said, “I had an opinion. I had a view on what things should look like.” FE 1 made a similar comment about thinking independently. She said,

What I’ve learned is to really push yourself to not fall into that mindset but really think for yourself. Think about outside of their vision or their point of view, just more generally this situation and what do you as a leader recommend.

Despite acknowledging the importance of independent thinking, FE 1 did recognize that “it’s just very easy to not do the work of thinking outside of this situation or outside of yourself.” ME 4, who spoke directly about creativity, said, “There’s just so many pieces that really allowed me to exercise different areas of creativity.”

Are Willing to be Flexible

Four participants (FE 2, FE 4, ME 1, ME 5) in this study made direct statements about the high rate of change in high tech calling it “intense” and “unmatched in any

other industry” (ME 1). They referred to the rate of change as “quick” (FE 4, ME 1) and “fast” (ME 1). Not only is the change quick, but it can be drastic (ME 5). According to ME 5, at one point, his company changed so drastically that for him “it was like joining another company.” One reason for all of the change, explained FE 4, is that “IT is never quick enough, fast enough, and cheap enough.” The main priority is to develop products that generate revenue and keep the market fresh (FE 4).

The quick rate at which high tech changes inevitably leads to changes in roles within high tech companies. All the executives in this study gave examples of changes in their roles associated with changing company landscapes. For example, FE 1 spoke generally about how she “did a few different roles” at one particular company. Similarly, FE 2 said, “The roles changed a bit since I’ve been here” with my current company. Other participants gave more specific examples about changes in their specific job functions (FE 2, ME 1).

Although all of the participants indicated they had changed roles in response to the changing high tech industry either multiple times or on a regular basis, only ME 3 directly stated that “constant change is good.” ME 5, however, did advise others not to “do what . . . [he] did . . . Don’t stay in one place too long.” The key to managing change, according to FE 1, is “just being able to be flexible.” Likewise, other participants advised leaders that they should “get used to change” (FE 5), become “highly adaptable” so they are “capable of dealing with . . . change” (ME 3), and “quickly adapt” (ME 4). In relation to changing roles, FE 1 expressed the importance of being “open to doing really anything online for many different types of jobs.”

Are Inclined to Take Risks

Willingness to take risks emerged from the data as a characteristic of successful leaders. Because of the uncertain nature of startups, all of the executives (FE 1, ME 1, ME 2, ME 3, ME 4, ME 5) who began or joined startups engaged in some level of career risk. ME 3 described startups as a “huge risk. No question about that,” he said, they are “absolutely a risk.” The biggest risk is that the startup goes “absolutely nowhere and . . . [is] a waste of time. You learned something, but you’re not able to go take that and upper level that as easy” (ME 3). Outside of startups, FE 3 and ME 5 also talked directly about taking risks with regard to job choice. About taking risks, ME 5 suggested, “You need to be in charge of your own career and take risks, move on.”

ME 2 and ME 5 also spoke about risk in the sense of opportunities for success within their positions. ME 5 said he was “wanting to always take those [opportunities] on, being willing to take the risk.” ME 2, who also took risks, suggested that taking risks sometimes involves making difficult choices and that some of those choices lead to failure. In that regard, he said,

Leaders fail and that’s okay. . . . [but some] don’t recover from it. . . . Other leaders fail many times and recover from it every time. And so you have to have this kind of resiliency to get through things because not everything is going to be great all the time.

FE 1 spoke directly about taking risks that could damage their professional ethos. She gave an example of when she was new to a company and unfamiliar with the professional jargon. She took the risk of

being bold enough to say, I just want to make sure that I understand or we're all aligned on X, Y and Z, and that obviously takes a leap of faith and sometimes it's the best thing to do. And sometimes someone would be like, "Well this person is like not following fast enough." And such is the risk you have to take, and I think you get better at deciding when to take that risk and filling it out over time.

Other participants demonstrated that they took risks. For example, ME 2 took a position in "a brand new role," FE 2 interviewed for a leadership position when she was pregnant and took a job in an industry "she knew nothing about," and FE 3 took a job in a company with no established network of support. Of that risk, she said, "I didn't know anybody in the region. I didn't know yet who I could trust." FE 5 stayed in a position that was unstable. However, she said that that instability drove her to work hard. She said, "What it meant for me was I better do the best damn job I can do every single day."

Possess a Strong Sense of Self

The data indicated that successful leaders possess a strong sense of self as demonstrated through their propensity for self-sufficiency, self-promotion, and self-awareness. None of the participants spoke about others with respect to sense of self. They did, however, speak about themselves directly in terms of self-sufficiency, self-promotion, self-awareness, and self-reflection or demonstrate these characteristics.

Self-sufficiency. ME 2 was the only participant who directly referred to himself as self-sufficient. However, FE 5 talked about never having "to rely on anybody," FE 3 identified herself as "the financial breadwinner in . . . [her] house," and FE 2 talked about how important it is to teach her two daughters about financial independence. She said, "I want them to grow up and to be able to be on their own. To be able to support

themselves. . . . to have their own independence, their own ability to take care of themselves.” She added, “There’s a power that you have in your marriage as well, if you’re also a contributor to the family finances.” ME 2 in particular demonstrated a desire to be self-sufficient starting at a young age. As he explained, “I babysat. I did yard work. I shoveled snow in the wintertime. I mean, always trying to figure out ways to make money growing up.” As soon as he was able to get a regular job, he did—at the age of 15 washing dishes in a restaurant. He continued to work various jobs through high school and college, taking advantage of overnight and weekend shifts, and a teaching assistant position that earned him both a modest salary and free tuition in an effort to be “more self-supporting.”

Self-promotion. Successful leaders in this study self-promoted by actively seeking out new opportunities for growth (FE 2) and advocating for themselves (FE 1, FE 4). Generally speaking, FE 1 advised that to get what one wants, one needs “to be clear . . . [about what is] important to you. . . . Be really clear with what, what you need and advocating for that.”

Although participants suggested that proactivity was a key element for ascension into leadership, FE 1 made it clear that

you can plan and you can be specific in your sort of personal goals and your focus on where you would want to be and what you would want to achieve. . . . [But] there’s this huge element of just timing and things that are not in our control and opportunity.

She added that she has always tried to “pay a lot of attention to the latter.” FE 2 also attributed to opportunities to “serendipity.” She said she just “happened to be in the right

place at the right time.” FE 5 described one such serendipitous opportunity as a “fortunate occurrence.” ME 3 suggested that startups inherently provide opportunities because of their structure: “When you’re there in that early stage, you just get this hyper accelerated exposure and opportunities that . . . [are] not going to be available for your peers in a larger company.” However, being presented with opportunities is a moot point if those opportunities are not acted on.

In this study, three participants (FE 1, FE 2, FE 3) spoke directly about taking advantage of opportunities in general. FE 1 said she was “open to doing really anything online for many different types of jobs” and “quick to action . . . [to] seize the opportunity.” FE 2 shared that she always took advantage of opportunities that came her way without hesitation. When speaking about pursuing an opportunity for a position she was fairly confident she would not get, FE 3 was a little lighthearted. Her philosophy had been, “What the heck?” (She got the job.) In some cases, participants indicated they pursued opportunities because they were in areas of personal interest (FE 2) or because they afforded the chance for new experiences (FE 2, ME 2, ME 4). Participants spoke about opportunities for new jobs (FE 2, FE 3), responsibilities within existing jobs (FE 4), clients (ME2), training (FE 1, ME 2), and networking (FE 2, FE 3).

Self-aware. Four participants spoke directly about self-awareness. ME 1 and ME 3 spoke generally about the need for leaders to be “self-aware.” ME 1 also described himself as “self-aware.” With regard to his long-term work goals, ME 2 made a statement about being “pretty aware,” and ME 4 mentioned his “self-awareness” about cultural differences between himself and one of his overseas customers. Participants also made

statements that demonstrated self-awareness. In particular, participants made statements indicating they were self-aware of their personal styles and needs.

Referring to leadership, ME 3 directly referred to knowing one's style and suggested that this knowledge could be beneficial to one's success in a company. FE 1 shared that she has "taken a handful [of personality tests] over the course of . . . her education and career," including one test to identify her "intuitive styles of influence." ME 2 also referred to one's "personality profile."

FE 3 made specific comments demonstrating self-awareness of her leadership style. She said,

I wouldn't call it competitiveness, but I have this thing where I am very picky about my battles. If I engage in a battle I'm going to win. I'm very picky about it.

I don't just fight people to fight people. I don't just argue to argue. (FE 3)

ME 2 demonstrated awareness of his personality. He acknowledged that "it was one of those things where you kind of got to know me a little bit before you understand me in some ways." He also recognized that his personality led him to approach people in ways that were not always well-received. Of those circumstances he said, "Those are my kind of edges I always have to be cautious of and conscience of. And I've stepped into them again and again, but it is one that I really try to watch out for."

With the exception of FE 4 and ME 5, all the participants made statements indicating they had awareness of their own needs in some regard. Participants spoke in terms of their need to (a) work (FE 2), (b) be unrestricted in their career pursuits (FE 2), and (c) achieve a work/life balance (FE 3, ME 1). They also spoke in terms of the need for (a) specific types of work (ME 3), (b) specific work environments (FE 1, FE 5, ME

2), and (c) work that interests them (FE 2, FE 3, FE 5, ME 1, ME 3, ME 4). With regard to engaging in work that is of interest, FE 3 advised, “whatever is important to you, you need to do because tomorrow your job could be gone.”

For half of the participants, self-awareness appeared to be the outcome of some sort of self-reflection. Three participants reflected specifically on past experiences from which they learned some sort of lesson (ME 2, ME 4, ME 5). ME 2 described how such a learning experience can be “a real eye opener.”

FE 1, ME 3, and ME 4 described situations in which they were prompted to be self-reflective as the result of feedback they received. FE 1 suggested that seeking out feedback can be beneficial, especially when one seeks “feedback from . . . a wide range of people about how you come across in a conversation.” For ME 4, the importance of feedback was focused on better management of his team and better rapport with his customers. After reflecting on feedback he had received, ME 4 said he “went from struggling to make . . . [his] number to being the top performing executive.”

ME 3 suggested that leaders “can go spend [a long amount of] . . . time in therapy to go figure out” what they need to do to be successful. However, both he and FE 1 suggested that leaders can figure out themselves what they need by asking, “What do you need to gain the results that you need to gain” (FE 1), “Why do you want to [do a particular job],” and “What makes you happy” (ME 3)?

ME 3 stressed the importance of engaging in self-reflection to avoid developing “a highly egocentric style of need.” Other participants underscored the importance of healthy self-reflection. For example, FE 3 said,

You have to call a timeout on yourself and be like, “Wait a minute. You’re beating yourself up over this and this, but look at these 10 things that you just finished, that just happened because of what you did.

Similarly, ME 1 warned about “judging yourself when you start to trip and fail,” and ME 2 warned that leaders must be aware they do not let themselves be defined by their failures.

Theme 4. Multiple Factors Contribute to Company Culture

Descriptions of company cultures provided in the Characteristics of the Sample section are descriptions of the companies at which the participants were employed at the time of this study. That information came directly from each company’s website. The information in this section, in comparison, represents participants’ perceptions of company culture in general, which may or may not include their perceptions about their current employers.

ME 3 defined culture not as
a set of words, [but] . . . how people interact with each other and behave with each other even when nobody’s looking and nobody’s seeing something. . . . And it’s not any different than everything that you would want as it rewards effort. It rewards competence, all of those things. So that’s kind of what it really boils down to.

According to ME 2, both rank and tenure are necessary for clearly understanding the culture of a company. FE 3 made a similar statement about how “people from the outside . . . [who] really struggled and then [were] not been able to stay longer term because they hadn’t been able to really get a full picture and understanding.”

Three participants (FE 4, ME 2, ME 3) made specific statements about the importance of culture. FE 4 referred to company culture as “huge,” and ME 2 said it was “hugely important.” For FE 3, company culture was so influential that she remained in a position with no upward movement or opportunities because, she said, “I really loved the team, and what I was doing.”

For startups, building a culture takes time because they need to decide what they’re “trying to do” (ME 3). As ME 2 described,

You really got to be thoughtful about how you’re rolling it out, what you’re setting as your core goals. But more than that is, [that] as a leadership team, you have to have a belief in what it is you want to stand for and first demonstrate that before you lay those down into written word.

However, according to ME 3, the development of a company culture becomes more attainable after the company becomes “more operational and structured.”

Regardless of the time it takes to develop culture, four participants suggested culture develops in a top-down trajectory (FE 1, FE 4, ME 2, ME 3). According to ME 2, “most companies take on the persona of their CEO and senior leadership team.” FE 4 agreed that “it does start at the top.” Because culture originates from the top, having “leaders [who] are approachable” (FE 4) and a “senior leadership team that sets a culture down and helps live by it” is essential to creating a positive culture (ME 2). On the other hand, “not all of them [senior leaders] are progressive” (FE 4). Additionally, when there is a “corporate culture of the CEO” (ME 2), a company may subsequently be micromanaged (FE 1) or struggle to define itself (ME 2). As ME 2 described it:

I wouldn't say it was bad. I'm not looking at that going, "That was awful." But it wasn't definable. It was just there. There was no core message, core goal, core thing we're proud of, and so it became a little bit of a hiring challenge sometimes when they [i.e., potential hires] said, "What do you stand for?"

CEOs with backgrounds outside of tech also can pose challenges to leadership development because they "would have only one perspective" (ME 4). For the purposes of discussion in this section, the characteristics of company cultures expressed in the data have been grouped as positive and negative.

Positive Characteristics of Cultures

The data showed a range of positive characteristics of cultures. The key characteristics that emerged were goal orientation; reliance on values; focus on employees; and an interest in employee equity.

Goal oriented. Participants expressed the concept of goal orientation in two specific ways. First, two participants implied the need for some sort of accountability in association with goals. For example, FE 5 talked about cultural transformation in terms of performance and the need to "really demonstrate that you're making a difference." ME 2 stressed that the company had "cultural goals written out. . . . They were demonstrable." He went on to suggest that clear definitions of cultural goals prompt people to live by the culture. FE 5 referred to clear presentation of the company's priorities and plan for application of resources to those priorities as important to ensuring that goals are reached. Additionally, in FE 5's company, having a means by which goals can be measured also contributes to cultural development. As FE 5 described,

That measure is, what's the distance between . . . the espoused culture and the lived experience? Right? So basically, if you have certain values that you espouse, that's one thing. But what's the lived culture every single day for every single employee in that organization?

Second, participants referred directly to meeting goals. For example, ME 1 said, there "was an overall pressure to act cohesively in order to meet this market demand," and FE 3 said, "Our culture very much is one of we're all here to work together to make our customers successful and that only makes us more successful. It's very much an open and sharing" environment. ME 5 spoke about the need to take action in order to reach goals. As he explained,

What I learned out of that was if you're asked to fix something and you spend all the time analyzing it and not actually making any changes, people will perceive that things aren't getting any better because nothing's changing. The only way to make things better is if something changes.

ME 5 went on to say that the company managers were more accepting of mistakes if they were made during a change process. The underlying message ME 5 took from this was that action is a necessary step toward the accomplishment of goals.

Reliance on values. Two participants described company cultures in terms of being driven by values. FE 5 spoke about how the culture of her company "is very, very reliant on values." She gave an example of how she and a colleague, at the request of the CEO, "facilitated a 3-hour conversation about values." However, just talking about values is not enough. As FE 5 explained, the culture has to be "far more than words that we just see on a poster in the hallway. There really is an expectation that we are living

these values every single day.” She stressed the importance of values because they “drive your behavior in your organization and the decisions that are made in your organization . . . in terms of how we treat other people.”

In addition to general references to values “and doing the right thing” (FE 5), references to specific types of values also were noted in the data. For example, FE 5 spoke about how the CEO of her company “drives a culture of empathy. Empathy for our customers, empathy for our partners, empathy for each other.” She also described how “the values of the company that we have are all around trust and integrity and accountability.” During her interview, FE 5 referred to integrity six more times, trust five more times, and accountability two more times, an indication of the importance of those characteristics to the culture of her company. FE 5 also referred to working with “really honorable” people, and ME 1 referred to a “highly engineering-driven . . . culture that . . . was more meritocracy than it was political.”

Employee support. Four participants spoke about culture in terms of company focus on supporting employees in general. They used terms such as “caring” (FE 4), “helping” (FE 3), and “safe” (ME 3, ME 5). FE 3 described how positive cultures include environments in which “people are there to help you be successful” (FE 3). One way in which employee success was supported was through autonomy. As FE 4 explained, “you’re allowed to fail, you’re allowed to learn. And it’s not any different than everything that you would want as it rewards effort. It rewards competence.” Another way in which employee success was supported was in relation to promoting a balance between work and personal life. For example, FE 4 implemented a family lunch day to

provide employees working extensive hours an extra opportunity to interact with their family members.

A third way in which employee success was supported was through leadership development. All of the executives described positive company cultures as ones in which leadership development was supported. ME 4 suggested that leadership development overall is a process so that no one specific program or event will “make an immediate impact.” Rather, leadership development is “like every data point that you can aggregate to the crew, in terms of things to watch out for and things to pay attention to. I think in the long run, eventually, they all do help” (ME 4). ME 2 called the opportunities “good” and “worth taking.” With regard to developing strong leadership support, ME 1 suggested that established companies deliberately seeking to provide leadership support may serve as a guiding light for others. By following examples, companies can figure out how they want to orient themselves to “identifying leaders and then providing the tools and support and education [they need] to continue to foster that once they’ve found the initial beat of that in people” (ME 1). Both ME 3 and ME 4 made general comments about the capacity of larger companies to provide leadership development.

All five female executives and ME 1, ME 2, and ME 4 specifically referred to structured leadership programs available within their companies. FE 1 and FE 2 referred to leadership development opportunities specifically for women. FE 1’s company offered a mentorship program for women. Of the program, FE 1 said it made her feel she had “a sense of . . . internal support and [a] champion who will like, speak on my behalf: basically, to have a sponsor.” FE 2’s company developed a program to promote

leadership among its lowest level female leaders. During monthly meetings, the women discuss leadership opportunities. FE 2 described the program as successful. She said,

the program, I thought, was really well done. And a few of the women we've seen, I've seen, getting opportunities that they would not have had because of the conversations that we have and the connections that we're making with each other. So, it's been a good experience.

Some support of leadership development was structured and happened recurrently but did not fall under the description of a program. For example, FE 2 described how her team brings together "high-potentials" and provides them with interviewing experience:

we kind of did a round robin of speed interviewing . . . to get them ready for when that opportunity comes up so that they're showing up for that interview in the right way. And also getting them exposure to different leaders that they might not have met before.

Additionally, FE 2's team provided opportunities for those high-potentials to complete business challenge projects and present their work.

ME 5 referred to informal support from his bosses, who they said gave them opportunities and experiences. For example, of his bosses, ME 5 said,

They let me learn. They let me make mistakes, and they were willing to promote me and give me more responsibility even though maybe I wasn't completely a 100% ready, but they knew I was going to learn it.

He explained that having such experiences and challenges is "what made the difference in my career."

Interest in equity. Participant discussions about equity as an element of company culture were focused on avoiding “unconscious bias” (FE 2) and being “open to everyone” (ME 2). FE 5 referred specifically to diversity, and three participants referred specifically to inclusion. FE 5 spoke generally about the need to include everyone. Similarly, FE 4 referred to inclusion as “way more than just gender.” FE 2, however, spoke more narrowly about inclusion with regard to women in particular. She gave an example of the need for equity in recruitment, citing gender-specific language:

So, we’re also looking at how are we writing our job descriptions and then how are we encouraging people to apply for those roles and then what are we allowing to get on our slate? If our slate doesn’t have even one female on it, we’re pushing those sites back to say, “Look, you’ve got to do a better job at recruiting.”

Because I want at least to have a balanced slate that I’m going for.

Although participants did address equity, and FE 2 talked about how companies have begun to pay attention to the lack of women in leadership roles, FE 4 explained that the reality of inclusion efforts is that they are not always well supported. She said, “Well, when you say division [i.e., team], usually it’s a single executive who . . . helps you with the measuring and coming up with inclusion programs.”

Discussion of equity in company culture was not solely focused on representation and job function. FE 5 told a story of an integrated baby shower thrown for her during her first pregnancy:

“It was the first time any men in the department were invited to a baby shower. . . . The ladies that planned my baby shower said . . . , “We weren’t sure who to invite to your baby shower because you work with almost all men.” So . . . I had

the first integrated baby shower, and it was so funny. All these men were standing around not quite sure of knowing what to do and they said, “Oh, I sent my wife out to buy you a gift.”

Although the story itself indicates company effort to include men in a traditionally female function, FE 5 suggested the situation was an indication of the lack of inclusion of women in leadership roles.

Negative Characteristics of Cultures

Logically, in comparison to the descriptions of positive cultures for which participants used terms such as *good*, descriptions of negative cultures included terms such as “backstabbing” (FE 3) and “hierarchical” (FE 1). ME 3 spoke generally about working for a small company as being “a disaster. . . . [because] it’s got the worst of both worlds . . . [that is,] the structure and constraints of a large company . . . [without] the upside of startup.” FE 3 talked about companies “not wanting to accept you or change.” ME 2 was less direct but also implied negative cultures exist. Of becoming aware of a negative culture in a company for which he had worked previously he said, “This is where you go, ‘Not everything is as rosy as it seems.’”

Additional and specific negative characteristics of company cultures that emerged from the data were more likely to have emerged in context. Those characteristics are discussed in this section. Because startups are prone to challenges inherently related to their size, the unique conditions associated with negative characteristics of cultures in startups are discussed separately. The outcomes of negative cultures, created by these negative characteristics, also are introduced. Faced with the potential for negative outcomes, employees in negative cultures adopt strategies for navigating within those

cultures. A brief discussion of the strategies, as identified by the participants, is included here.

Negative characteristics of corporate culture. Two specific negative characteristics of corporate company cultures emerged in the data. Those characteristics were lack of employee support and inequity. These characteristics are discussed in this section.

Lack of employee support. A variety of participant statements suggested that negative cultures are characterized by lack of employee support. One participant (ME 1) made reference to lack of employee support with regard to poor work/life balance but did acknowledge that “companies [are now] trying to do that.”

The remainder of the comments pertaining to employee support was in reference to leadership development. FE 2 questioned the insufficient number of programs at her company, which ultimately resulted in a misalignment between her company’s stated goal of promoting women and their lack of support structures for doing so. She said, “Why don’t we have more of these? We’re trying to get women to be in these positions of leadership, and we’re not doing anything to help promote them.” On the other hand, ME 4 questioned the efficiency of his company’s existing programs. He said that his company did “have structures and programs in place for leadership development,” so the question then becomes “whether or not it’s executed well.”

FE 3 explained that she was unable to get adequate leadership development support from her boss because “he didn’t have the knowledge and experience or maturity, frankly, leadership maturity to really be able to give any kind of guidance or things that” she needed, a situation that forced her to look elsewhere for the support. ME 5 also spoke

about lack of leadership development support at the supervisor level. Unlike FE 3, however, ME 5 referred to his boss's unwillingness to give him "more chances to grow and [more] challenging assignments" and that he mostly had to rely on himself.

FE 1 hypothesized that lack of employee support results from power struggles that occur in tech companies. She explained, that as companies grow, "there's very much an incentive and a trend to always build your team and your sphere of influence into sort of your personal empire." She acknowledged "that is usually not overall the most effective or efficient way to build a company" but that it is "common" and just "human nature." She added, "You probably can never work somewhere . . . and not [experience] some form of power struggle."

Inequity. Participant discussions about inequity as an element of company culture were gender focused. General comments about inequity made by FE 2 essentially were reflective of gender bias. For example, FE 2 said, "There were times where I ran into jerky men" and, referring to inappropriate comments, "I would look around being like, 'Oh my god. Where is HR?'" However, other examples were more specific. FE 2 told one story in which a young male executive had been making "derogatory" comments about a female colleague and another in which the comments her boss had been making "certainly [were] not politically correct." FE 4 shared a story in which male colleagues had been making fun of the women's networking system she had set up to empower female employees in her company. The men had been suggesting that the group was "a place to where we could discuss recipes and stuff."

Other participant comments and stories were more reflective of gender inequity in the sense of lack of diversity. Three participants (FE 3, FE 4, FE 5) spoke generally about

lack of gender diversity. FE 4 spoke specifically on diversity and how common it was for “the tech giants” to describe themselves as “progressive and leading the way” but in reality “were no better” than the other tech companies. FE 4 also told a story about having participated in an engineering meeting with colleagues after which her boss approached her and said, “You were just in a meeting the 17 men. How did that feel?” After telling him she “didn’t notice,” to herself she questioned, “Why did you?” FE 4’s story, although not directly indicative of gender inequity in practice, did imply that gender inequity existed in that company.

Negative characteristics of startup culture. Although ME 2 referred to the benefits of startups, other participants indicated that startups were prone to challenges inherently related to their size. For example, regarding company culture in general, participants made distinctions between “big companies, [which] probably do a much better job” (ME 4) at developing company culture than startups, which “don’t have either the time, the money, . . . the experience” (ME 3) “or room for people not to be [autonomous and able to fill leadership roles]” (FE 1). As ME 3 explained, “That’s literally what the mentality is because they are trying to survive, right?” He went on to say, “In a startup world, we’re focused on revenue, getting it done and you know, being able to do more.” The focus is on “getting the right people, and, boy [if] they don’t work up, you’re getting rid of them because you can’t afford to carry somebody in an early stage” (ME 3). ME 4 suggested that lack of employee support, in particular with regard to leadership development, is the result of inexperienced “CEOs who, basically, that’s their first job and . . . [they’ve] never done anything else.” For this reason, he explained, those

leaders are unable to “see from the other side” and provide employees appropriate leadership development support.

Additionally, because the few are responsible for all aspects of the company, there is “a lack of work/life balance” (ME 1) and little potential for leadership development (ME 2, ME 3). As ME 3 explained,

Their [i.e., startups] first job is to survive and to find a repeatable business model.

That literally allows them to have the luxury of a predictable, repeatable business that they can then invest in programs they allow others to see. So, therefore, people who need that affordable stuff . . . usually have a tough time in startups.

Similarly, ME 4 said, in “a startup, you’re kind of expected to know what to do when you joined, or you’re expected to figure it out there quickly.” In some cases, startups may struggle because they put forth an idealized culture they are unable to support. ME 2 referred to that scenario as shooting “ourselves in the foot sometimes.”

Outcomes of negative cultures. Comments made by five participants demonstrated the potential for important consequences of a negative culture. One participant, ME 2, told a story about how he and his colleague had both been promised and then denied the same position. Within 18 months, both men had left the company. ME 1 also talked about having left a company because he had gotten “unsettled about the direction of the company and missed opportunities.” He went on to say that “like five other teams that all left at the same time.”

Unlike ME 1 and ME 2, FE 1 was not driven out of her workplace by the negative culture; however, she did indicate there “were sort of unsaid repercussions for you kind of stepping outside of your bounds.” She went on to describe those unsaid repercussions

as obstacles that “could prevent your leadership capabilities.” In a similar way, the negative culture in FE 3’s company held her back from developing her leadership capabilities. She said, “I could get some insights from her [i.e., FE’s boss], which was good, but I couldn’t get some of the coaching that I needed.” She went on to explain that those missed opportunities were the result of her fear of sharing too much information with a potential future superior. Similarly, ME 2 suggested that because of lack of direct support, “You kind of seek our reinforcement of, ‘Did I do a good job?’” FE 4 mentioned being driven by a negative culture to discontinue a women’s networking group after hearing that her male colleagues had been making fun of it. However, she did recognize that ultimately it may have been better to have formed an inclusive group because, “then you don’t make women just feel different.”

The previous examples of negative outcomes were extrinsic in nature. However, participants did talk about the personal impact negative cultures had on them. In reference to the situation in which ME 2 was promised the same job as his colleague, he said, “It really threw us for a loop, both of us. At that moment, we both hated each other . . . I wasn’t sleeping. I was not eating well. I was a nervous wreck.” FE 2 recounted a story in which she spoke up on behalf of a female colleague who was being disrespected in a meeting. She shared that after the meeting, her female colleague said, “Thank you. . . . ‘They don’t necessarily realize some of the things they’re saying and how hurtful that is to you as a parent.’”

Navigating a negative company culture. According to FE 1, the influence a negative culture has on an employee “just depends on your chill, like your response to the culture.” Five strategies for navigating negative company cultures emerged from the data.

FE 2 spoke both of ignoring the negative culture and engaging it with it. She said she “ignored it because I just found it to be pretty obnoxious.” However, she then told a story about how she made a sarcastic remark to an inappropriate comment made by a colleague in a meeting:

I was at a table once where there was another young woman and she had young kids and there was a guy who was around her age and he was making some comment about, that was really kind of derogatory about a working mom. . . . So, I just said, “Oh, well I would just leave my kids alone with some ketchup packets.”

FE 2 added that the young woman’s gratitude confirmed the appropriateness of her response.

FE 3 navigated the negative culture in which she found herself by keeping herself guarded. She said, “I didn’t want to be 100% transparent with her because I knew at some point I may report to her.” FE 1 found she could navigate “outside of the bounds that were expected of” her. She explained, “I think the way I handled that was to do it a bit anyways and then tried to empower my manager with the good things that came out of that work.” Also, although she did not do it herself, FE 4 mentioned that other women deal with inequity in company culture by overcompensating in their handshakes. She said, “Well. They always say you should have a firm handshake and not let go . . . , but squeezing somebody’s hands until it hurts? I just hate that.” She continued,

One of my pet peeves is women who feel that they have to . . . squeeze your hand extra hard when you shake hands with them just to prove that they’re like a guy. I don’t know if you’ve ever noticed anyone doing that?

FE 4 referred to the use of social intelligence. She said,

I worked for a guy once, and I could tell by his behavior that he didn't think as much about females. And so what I did in one of the one-on-one meetings—now, I normally don't curse at all—but in that meeting, I used the F word a couple of times, and what it did was it kind of gave him permission to use the F word.

She went on to say that that strategy made her “more like one of the guys.”

Theme 5. Examples of Gender Roles and Stereotypes Were Evident

As explained in Chapter 3, the interview questions used to collect data for this study were designed to allow discussions about gender inequity to emerge organically. Therefore, it was not surprising that only one participant (FE 5) directly referred to gender and only one participant (FE 2) directly referred to stereotypes. FE 5, who indicated she had not been impacted in her career because of her gender or family status said, “I do tend to look at the glass half full and take a positive view on life. So, I honestly don't think I've ever been truly discriminated against for being a woman or held back for” becoming a mother. FE 2 commented that she had “hit a few stereotypes” during her career.

However, although stereotypes, gender, and social expectations were not specifically cited by the majority of participants, the data suggested these experiences did occur. The following discussions in this section were inferred from participant statements that suggested the application of a stereotype or gender-based expectation.

Individual Qualifications

The data suggested that women and men view their qualifications from different perspectives. Of the female executives, 60% doubted their qualifications or placed higher

expectations on themselves. FE 3's self-doubt was evident in her comment that "obviously, [I am] somewhat of a candidate but not a top candidate for it." Regarding expectations, FE 4 gave the example of a female student who earns a C in calculus early on in her school career and immediately tells herself, "Okay, that's it. I can't major in engineering or [a] technical field." Conversely, suggested FE 4, a male student who obtains a C in calculus is satisfied; "Yes! I passed." About established career women considering applying for higher level roles, FE 2 suggested, "We have to have 100% of everything that's on that job before we even apply" whereas men in equivalent situations think, "'Oh yeah, I kind of know . . . that. I'll just apply.'"

Gender-Based Expectations

All female executives and two male executives (ME 2, ME 3) alluded to the application of gender-based expectations on men and women. Those expectations were associated with education, motherhood, and roles in the workplace.

Education. Statements made by four participants (FE 2, FE 4, ME 2, ME 3) demonstrated the challenges their mothers faced with regard to education. ME 2's mother did not attend college because "they had me," and ME 3's mother "dropped out of college when she got married." Similarly, FE 2's mother "got married" but dropped out because at the time "if you were married, you couldn't continue in nursing school." When FE 2 was older, her mother went back to school part-time and obtained her undergraduate degree in nursing. FE 2 shared that her mother wanted to continue her education and become a doctor; however, "that was not something that my father was supportive of." To her mother, her father said, "Alright, well you'd better go work then if you've gone and gotten this [degree]." Like FE 2's mother, FE 4's mother attended college later in life

after being a stay-at-home mom. As FE 4 explained, “My mom didn’t get her bachelor’s until she was 50 and then went onto a doctorate.”

Statements made by the female participants also suggested that they were cognizant of gender-based expectations in their own educational experiences. FE 5 was the first person in her family to obtain a college degree, and FE 3 recalled that after graduating with a liberal arts degree, others projected expectations onto her; ““You’re going to be a teacher”” or ““You’re going to law school.”” FE 2, who attended a prestigious technical institution that her late grandfather had attended, said, “It was funny because my grandfather was one of those . . . I was a girl, so I didn’t really count.”

Speaking generally, FE 4 commented that the Bureau of Labor Statistics shows “females leaving college with technology degrees peaked in the early ‘80s” and that women continue to trail behind men in the acquisition of technology and science degrees. In an effort to help increase the number of women in science and technology and to provide them with leadership experience, FE 4 created a nonprofit for young girls. When asked why she had undertaken that task, referring to her daughter, she simply replied, “Well, I had the girl.”

Motherhood. Most of the female participants ($n = 4$) shared experiences of being a working mother and subsequently juggling family and work. Two shared feelings of female guilt—a mother’s self-inflicted criticism relating to perceived negligence of her stereotypical familial responsibilities.

Working mother. FE 5 was very aware that she “was one of the few that worked in our social circle after having children.” She and her husband were both employed but “never had a ton of money.” She shared an experience with her circle of friends.

Holy shucks, all these women sitting around talking about how they're spending their husband's money and complaining about they don't want this car; it has to be that car. And I'm thinking to myself, "I drive my Honda Civic," and I remember, I know I love these women, they're very good friends, but I remember saying to both of my girls, "Come on girls, we've got to go. It's time for us to go home." And because there were just certain things of values I tried to inculcate in my daughters, and that kind of discussion wasn't one.

Similarly, FE 2 raised "two very independent girls" because she felt "it's really important for women to have their own independence, their own ability to take care of themselves." She stated

If they want to get married, that's fine. If they want to have children, that's fine. . . . I always say to them, "If something happened to Dad, we'd be fine. We could move on." Not that we would want that to happen, but I think having that, I think, I just think it's so important. And there's a power that you have in your marriage as well, if you're also a contributor to the family finances.

As a working mother, FE 2 found herself always "worried about . . . childcare" when leaving on business travel but noting her husband did not appear to have that stress. She shared that she wished her husband, "for one time" took the lead "to figure that [i.e., childcare] out" instead of assuming she would. When she and her husband decided to maintain two separate households in two different states due to conflicting job needs, she took the children and family pets with her.

FE 3 pointed out the irony of being "in carpool picking up my kids" when she received the call that put her on track for vice president. Before she actually accepted the

position, she told her husband, who would be fulfilling the role of a stay-at-home dad and sole childcare provider while she was on travel 90% of the week, “Okay, here’s the deal. You are not allowed to divorce me for the next year. I don’t care how much you hate me this next year. You are not allowed to divorce me.”

Female guilt. In conjunction with motherhood, female guilt emerged as a concept in the data for two participants. However, only one participant, FE 2, spoke directly about guilt. She said that after having her first child she “felt a lot of guilt about working and not being home.” She later defended her choice to work outside the home. She said,

But I’ve never had them [i.e., the children] say, “I feel like you neglected me,” or “I didn’t have something that I wanted.” And we always had had care. . . . And I think having other people besides their parents love them is also good.

FE 3, who did not directly refer to feeling guilt, did mention “missing out” on her children’s activities due to work. Similar to FE 2, FE 3 defended her choice to work outside the home. She said,

My kids don’t hate me, so I think that’s good. . . . Hopefully, they would say that they didn’t miss, I mean, of course, everybody would love for their mom to be there all the time, both parents should be there all the time, but I think they understand and they’ve seen the example that I work really, really hard and the sacrifices that we’ve made as a family to be able to have things that they have. Right?

Women in the workplace. All five female participants made comments or shared observations or experiences suggesting women are subject to stereotyping and/or feel they need to compensate in some way to successfully integrate into the workforce. The

stereotyping and compensating experiences were generally associated with a sense of disapproval and behavior modification.

Disapproval. Evidence of disapproval of women in the workplace surfaced in the data for three of the five female executives. For example, after FE 2's mother "went back [to school] and got her master's degree in biology, she ended up teaching AP bio and chemistry." Although she "had such a passion for it, . . . people would say to her, 'This is, a science teacher is a man's job. You should be home. Your husband works. Why are you here' kind of stuff." FE 2 herself endured hearing derogatory remarks about working mothers and being shamed throughout her career for neglecting her motherly duties. Some colleagues made comments like, "Oh, well, my wife stays at home because we want to raise our children" and my "wife stays at home because . . . [we're not] greedy."

FE 3 shared how her new team was "completely shell shocked" when she took over the organization and "not only did they have a new boss, but it's some American chick." FE 4 could tell by her male counterpart's behavior "that he didn't think as much about females." She recalled when she interviewed for a particular CIO position and was told "there is no way that they would put a woman in that position." She was hired.

Behavior modification. Two female participants (FE 1, FE 4) gave examples of having consciously modified their behavior in an effort to successfully integrate into the workforce. FE 1 found herself being "dismissive" of her "intuition" instead of engaging in constructive conversation when she "didn't agree or if I really saw something in a way that was different than our CEO." FE 4 shared "that it is a fine line between being considered passionate and being labeled intense" and "people don't like to hang around with intense people." When engaging with her male counterparts FE 4 admitted having

modified her own behavior to “get the desired result you want without them knowing,” including, she added, using the “the F word a couple of times.”

FE 4 also spoke generally about women modifying their behavior in the workplace. She stated that women are criticized for “hair, face, makeup, and attire” with the outcome being a “pink tax” such that women “have to spend a lot of time and money” to be “comfortable and progressing” in the workplace. Throughout her career, FE 4 also has coached other women to “tone down the short, tight skirt” and to “dress more like a businessperson than a cable puller.” Additionally, some women take on male behaviors—for example they may “squeeze your hand extra hard” to “prove that they’re like a guy.” In the past, when she observed a woman with short nails, she wondered if their nails were short because “they [i.e., the women] can’t grow them or because they [are worried they] might appear too feminine.”

Leadership Landscape

Four of the female executives made comments that suggested leadership was mostly male dominated. FE 4, who at the age of 25 became the first woman to take on an operations management role, shared that throughout her career, “it’s always been more pale, male, and stale.” She added that female leadership is “rare.” Similarly, FE 2 agreed that “most leadership are men.” Both FE 4 and FE 5 mentioned that professional services and government roles tended to be male dominated. FE 5 said, “Any place I worked, the executive assistant roles [in which she worked] were always professionals and held a lot of responsibility. And were often men. Most of them were men.”

On the other hand, one participant, FE 3, shared her surprise at taking over an organization that had a higher than expected gender balance. She said,

Well, I'm a woman. I replaced a woman. I was actually pleasantly surprised to see there were more women in Latin America than I had expected. I expected it to be a lot more male dominated.

Although FE 3 acknowledged that there has "always been [at least one] . . . woman leader" in the companies in which she was employed and that she "was fortunate . . . to have worked for some of them along the way," she also noted that throughout her career there have not been "a lot of women leaders."

FE 2 suggested that men need to "have skin in the game" for women to be afforded opportunities. She noted that businesses are "looking at trying to increase their ratios." FE 4 also acknowledged that the landscape is changing but admitted that it is "slowly changing and unfortunately, it's [only] changing with legislation."

CHAPTER FIVE

DISCUSSION AND CONCLUSIONS

Five themes emerged during data analysis. Participant's entry point into the high-tech industry emerged as Theme 1. As the participant's careers developed, their paths to leadership (Theme 2) surfaced as did their leadership characteristics (Theme 3). Multiple factors contributing to company culture (Theme 4) emerged, and the application of stereotypes and assumption of gender roles (Theme 5) materialized. Content from these themes were used to address the four research questions posed for this study. In this chapter, each theme will be discussed and analyzed within the literature and theoretical framework, if applicable, followed by the answers to the research questions.

Themes

Theme 1. Paths to High Tech

Paths into high tech varied among the participants. The majority of participants described themselves as falling into high tech versus other participants who spoke of specifically seeking out the high-tech industry. Even among those who became accidental technologists, their paths to high tech varied. Some had early exposure to technology, such as playing games on a computer or being a technology hobbyist because it paid the bills. Others found their interest sparked from fulfilling an elective college credit requirement with a technology-related class or gaining a technical position right out of college. Individuals exposed early on to technology went on to pursue and achieve a technical or STEM-related degree.

Other accidental technologists described being recruited by a technology company or being exposed to the technical hotbed exploding in the Bay area during the

90s. These individuals exited college with non-STEM related degrees; however, they continued their careers within the high-tech industry. Of the two participants who purposefully pursued careers in technology, one had been exposed at a young age to emergent technology and had solidified plans at an early age to pursue the educational path to get there. The other was more analytical in assessing the career opportunities within the community and taking a calculated approach to entering the job market.

Although participants varied in their paths to high tech, it appears that those who were exposed to technology before and during college tended to pursue a STEM degree, change majors to a STEM degree, or pursue a dual degree in a STEM-related field. These data suggested that having access to or being exposed to technology influences an individual's desire to pursue higher education in high tech. Similar findings are evident in the literature with regard to early exposure to technology and pursuit of STEM-related degrees and career paths (e.g., LittleBits, 2019).

Theme 2. Paths to Leadership

Across all business domains, participants described factors that contributed to their successful ascension into leadership as well as barriers that created hurdles to clear. Through the interviews, participants characterized spouses and family, components of their business sector, mentorship, networking, and availability of leadership opportunities as factors supporting leadership ascension. Lack of leadership support and self-selection emerged as barriers to ascension. Distinct from a barrier to ascension, motherhood emerged as a challenge to ascension.

Family and spousal support. Family and spousal support played a significant role for all the women in the study. Specifically, participants cited the encouragement of

their spouses and family to take risks, overcome lack of confidence, and to take chances on new opportunities. The support female executive participants received extended beyond encouragement to what was described as a partnership with their spouse on responsibility for family planning and parenting. The concept of choosing your partner wisely emerged as a potential framework for women as they manage existing simultaneously in multiple and diverse roles as wife, mother, and professional. Additionally, these women cited an extended family framework that allowed them to lean on family support outside the nuclear relationship in cases where parental priorities conflicted.

The importance of a home support for women was found in the literature. According to Ang (2019), to have successful careers, women “need to establish a home support system—to help them balance work and life, and reduce the amount of tax on their time, energy and mental faculty that is needed to run a household and yet, still perform well at work” (p. 50). These outcomes are supported, in part, through increased time to invest in one’s career and to maintain one’s health and physical fitness (Ang, 2019). Essentially, home support systems help mothers alleviate the conflict between their conflicting roles as leader and mother; without such support, families would hinder women’s career ascension (Ang, 2019).

Although the concept of spousal and family support were not overtly discussed nor emerged in the interviews among the male executive participants, spousal support was subtly suggested as a potential factor for success. These subtle factors included men working long hours at the chagrin of the spouse at home, acknowledging the spouse possessed intimate knowledge of career missteps, and deciding to slow down extensive

traveling once they started a family. Additionally, male participants did not specifically state spousal support was a factor of success; however, the male participants alluded to spousal support in tolerating long working hours, being a confidante during career development, and supporting extended traveling needs.

Because spousal support is inherently associated with parenting, I was not surprised to find female executives overtly described, and in some cases stressed, being a working parent as challenging yet the male executives did not. According to the Pew Research Center (2015), 54% of mothers and fathers agreed that mothers take more responsibility for managing their children's schedules and activities; 47% of mothers and fathers also agreed that mother take more responsibility for caring for their children when they are sick. Also, 31% of parents thought mothers handled the majority of household responsibilities, 20% of parents thought mother most often disciplined their children, and 22% of parents thought mothers were more active in engaging with their children (Pew Research Center, 2015). In addition, when compared to full-time working fathers (39%), full-time working mothers (50%) are more likely to say that parenting makes it more difficult for them to advance in the workplace (Pew Research Center, 2019).

Support from the business sector. Male and female participants alike cited support from the business sector as instrumental in their leadership ascension. This support came from participant's bosses, coworkers, formal and informal mentorship opportunities, and networking.

Bosses and coworkers. Participants' bosses played a significant role in positioning the participants for success and had varied approaches. These approaches included creating opportunities for the participant to develop and demonstrate leadership

acumen to expanded audiences by delegating challenging or high-visibility assignments. Other bosses created a positive reputation for the participant by highlighting their accomplishments to higher-level decision makers and recommending the participant for challenging and high-visibility projects as well as sponsoring them for promotions and/or new roles with increased responsibility. In some cases, the participant was invited to move with their boss, or recruited by their old boss, to a new role and/or company at a higher leadership level. These different support approaches employed by participants' bosses increased leadership opportunities. In many cases, participants' leadership opportunities emerged from past coworkers who lured the participant to a new company or startup.

With respect to the contributions of sponsors, sponsee learning, and the outcomes of sponsorship, the findings in this study are supported in the literature. Sponsors deliver “high-octane advocacy” (Hewlett, 2013, p. 30) by demonstrating confidence in their sponsees, advocating for sponsee promotions, and providing career protection so sponsees can take risks. Additional research on sponsors of women in particular has shown that sponsors not only advocate for their sponsees but also provide them career breaks and opportunities, including stretch assignments (see Ang, 2019). Female sponsees typically benefit from (a) increased skills needed for leadership ascension, including the capacity for problem solving and adaptability; (b) increased visibility; (c) an expanded professional network; (d) elevated reputation (Ang, 2019); (e) immediate respect (Marcus, 2015); and career flexibility (Czerniawaska & Guzman, 2016). For women, well-leveraged sponsorship

is effective in driving upward career trajectory by at least one to two levels on the organisational hierarchy . . . [and is more impactful than] the combined initiatives of flexible work arrangements and other career enhancing programs such as mentoring, women leadership programs and networking. (Ang, 2019, p. 3)

As such, women who have sponsorship in the workplace are more likely to shatter the glass ceiling (Ang, 2019). However, when compared to women, men are 46% more likely to have a sponsor (Hewlett, 2019), and when compared to female sponsees, male sponsees are still more likely to be promoted: 19% versus 23%, respectively (Hewlett, 2013).

Mentorship and networking. Mentorship and networking also emerged as factors for success in gaining leadership positions. Participants spoke of these concepts as different but also as interchangeable. Although a few women mentioned participating in formal mentorship programs through their company, they did not seem to attribute formal mentorship as instrumental in their career development despite agreeing the programs were helpful. However, having female role models and/or working with a female leader in the organization appeared to have a positive impact on the female participants' career development.

Overall, informal mentorship (e.g., developing and maintaining relationships both within the organization and outside of it) was cited as significant to career development for both men and women. This informal mentorship included relying on (a) social networks (e.g., family and friends who served as a venting portal and unwavering support); (b) trust networks, such as close friends and peers with whom the participant could share confidential information and from whom they could get candid feedback on

ideas; and (c) knowledge networks consisting of individuals who could impart wisdom, assist in specific problem solving, and/or provide a bridge to an opportunity for the participant.

That three of the four female executives who reported having informal mentorship opportunities described their relationships with their mentors in a personal way speaks to the constructivist nature of those relationships. According to role congruity theory, compared to men, women are perceived to be more empathetic, expressive, caring, and nurturing such that they are perceived to be (a) ill-suited or incapable of fulfilling leadership positions requiring agency (Eagly, 1987; Gervais & Hillard, 2011; Heilman et al., 2004), (b) less likely to be considered a desirable leadership candidate for leadership positions, and if they do secure initial leadership roles, (c) more likely to be perceived in a negative light so that they would likely face continued barriers to advancement (Eagly & Karau, 2002). However, as noted previously, the tenets of role congruity theory are limited because they do not explain how some women are unable to successfully balance dichotomous roles while others, such as the three female executives in point here, are able to do so. Although it has been purported that the lack of women in leadership positions may be a reflection of decision-maker bias (Castilla & Benard, 2010; Eagly & Karau, 2002), that apparently is not the case here as these female executives have risen to the highest ranks of leadership. In this scenario, these women seem well able to blend dichotomous sole roles.

Availability of leadership opportunities. One strong factor for leadership ascension was the availability of leadership opportunities. Often, participants were exposed to different opportunities through the relationships they had developed; however,

a few recognized that leadership opportunities in their current role did not exist and elected to move on thereby creating their own leadership opportunity.

Participants shared that leadership opportunities were made available to them due to personal characteristics, such as past successes and a tendency to click with their team. Their history of success implies the participants were reliable, results-driven individuals, and their tendency to click with their team implies they possessed a positive personality, the ability to get along with others, and an understanding the overall business end-to-end. The literature supports interpersonal and end-to-end business skill as a characteristic of successful leaders. According to (Kiel, 2015), skilled business people “know how to create a vision, maintain a strategic focus, demand performance, and hold people accountable” (p. 22). Additionally, they demonstrate integrity, responsibility, forgiveness, and compassion (Kiel, 2015). On the other hand, some literature has suggested the opposite is true: leaders in the technology industry are cutthroat and use fear tactics to motivate employees much like leaders in industry during the 1950s and 1960s (Hamilton, 2017).

Opportunities for leadership also had distinct characteristics suggesting that leadership opportunities are slower and more hierarchal in a corporate setting, generally requiring that a role become vacant before an opportunity is made available. In fast-paced startups where there is an impending need to show immediate financial return, leadership was inherently expected and opportunities to practice and take on leadership roles were abundant.

As someone with longevity in the corporate high-tech sector, this characteristic of leadership opportunities in a corporate setting resonated with me. In my experience,

leadership opportunities were not copiously available, and there was high competition when one opened. Lack of leadership opportunities are inherent in the corporate world where a typical pyramid structure exists with senior leaders on the top of the pyramid, followed by managers, supervisors, and front line workers at the base level (Stoner, 2014). I also knew many colleagues who left the corporate setting to join or create a startup and found that by necessity they took on a lot of roles and consequently ascended the ranks at a faster pace.

Lack of leadership support. Despite identified sources of support to career ascension, participants also shared that they experienced lack of leadership support. Participants shared situations where they were discouraged from taking an opportunity, were intentionally passed over for a promotion because of organizational politics or political alignment, and were not allowed to create leadership opportunities that would enhance the business and their own careers. In these situations, most participants elected to move on to another company or role that was more supportive.

Self-selecting out of an opportunity. Another barrier to leadership was participant self-selection to stay in a role or position that afforded them the security of the job while allowing them to balance outside commitments, such as family. This dynamic was particularly evident with the female participants. However, some men also chose this strategy in response to starting a family. The literature also shows that when compared to men (15%), women (23%) are more likely to self-select to turn down advancement opportunities in order to better achieve a balance between work and home life (Pew Research Center, 2019) or to otherwise experience family related interruptions (men, 24% vs. women, 39% Pew Research Center, 2013).

I found it very interesting that male executives in this study chose to self-select out of an opportunity as during my career I never witnessed or got the impression that the male leadership felt inclined to slow down or needed to skip an opportunity due to family commitments. This may have been, in part, due to gender-based expectations of men and women with respect to supporting the family versus caring for the family. Therefore, it is quite possible that the male executives with whom I worked did desire more balance between their home and work lives but that in keeping with the tenets of social roles theory and role congruity theory, the male executives felt it necessary to act in a way that aligned with stereotypical characteristics of a strong male leader, including holding positions of power outside the home (see Eagly et al., 1992; Eagly & Steffen, 1984).

Motherhood. The female participants did not give voice to motherhood being an actual barrier in their careers. However, motherhood did emerge as a distinct challenge for women. Specific challenges that emerged were based on concerns (a) that pregnancy would have a negative impact on leadership opportunities, such as being passed over based on impending maternity leave; (b) that motherhood would result in presenting as a less favorable candidate because of family distractions; or (c) that motherhood would slow the rate at which one could advance in their careers.

Data in the literature support this perception. When compared to fathers, mothers more often reported being treated as if they weren't committed to their work (20% vs. 27%), being passed over for an important assignment (14% vs. 19%), and being passed over for a promotion (13% vs. 19%; Pew Research Center, 2019). Additionally, as previously indicated, when compared to full-time working fathers (39%), full-time working mothers (50%) are more likely to say that parenting makes it more difficult for

them to advance in the workplace (Pew Research Center, 2019). Interestingly, when comparing the Pew Research Center data from 2013 and 2019, mother's perceptions of the impact of parenting on their potential for career advancement changed little (51% vs. 50%); in comparison, father's perceptions of the impact of parenting on their potential for career advancement increased noticeably (16% vs. 39%).

I also found it interesting that, in all cases, the women described these situations with respect to perceived social and/or gender expectations. However, when these women had been concerned about motherhood as a barrier to ascension, they had not yet reached the highest leadership positions. Although pregnancy and motherhood did not appear to have any bearing on the participant's leadership abilities or ultimate ascension to leadership roles, the women's leadership journeys did take on a unique path characteristic that suggested career women must be mindful when pursuing both career and family.

Theme 3. Successful Leaders Share Common Characteristics

According to the participants, successful leaders embrace opportunities to practice leadership, seek industry-related knowledge and skills, demonstrate commitment, display strength, exhibit a capacity for problem solving, are willing to be flexible, are inclined to take risks, and possess a strong sense of self. These eight characteristics emerged through both direct descriptions of themselves and other successful leaders and through indirect statements demonstrating these characteristics. Each of these characteristics is briefly described here. These findings, overall, are supported in the literature suggesting that successful leaders possess an integrated array of “physical, neurological, genetically predetermined, and acquired attributes that form . . . [their] character and direct . . . [their] behavior” (Kiel, p. 38).

Embrace opportunities to practice leadership. The participants shared early exposure to leadership opportunities that materialized through youth activities. For some participants, their leadership foundation came from either excelling in sports or from an early experience being elected a team captain. Other participants discussed leadership roles they held early on while participating in boy scouts or girl scouts. Although attaining the rank of an eagle scout is a prestigious honor, as is fulfilling the highest ranks in the girl scouts, at times, participants surmised that they had not considered these activities as early leadership experiences. However, upon reflection, they did see how they played into their leadership exposure. These examples underscore the potential that leadership development can begin early in life for both men and women.

Seek industry-related knowledge and skills. Interestingly, the participants were divided on whether a broad understanding and overall knowledge of the business and technology was more important to leadership versus having technical prowess. Participants attributed having strong skills in technology as one characteristic that made them a fit for leadership; others touted having an end-to-end big picture of the overall business and technology stack. These concepts are not mutually exclusive and appear to have an intersection that allows leadership to emerge from both backgrounds, and indeed, both types of leadership appear to be essential. Regardless of a big picture perspective or a tailored and technically oriented one, the characteristic of embracing new and emergent technology was a consistent theme. The literature supports end-to-end business skill as a characteristic of successful leaders. According to (Kiel, 2015), skilled business people “know how to create a vision, maintain a strategic focus, demand performance, and hold people accountable” (p. 22).

Participants varied in their own educational attainment, or pursuit of knowledge; however, the majority held degrees in STEM-related fields and the majority expressed an early affinity for math and science. Ironically, all women held a master's degree; only one male obtained a master's degree. This finding is not supported in the literature which shows that, with the exception of life sciences, few women are earning advanced degrees in STEM fields (National Science Board, 2018). Considering the tenets of role congruity theory, it is possible that the female executives sought master's degrees because they felt the need to compensate for a perceived lack of capacity to fulfill leadership positions (see Eagly & Karau, 2002, Lerner, 2015, Snyder, 2014). This idea is revisited in more detail in Theme 5.

Of the participants who did not hold a STEM-related degree, these participants appeared to possess a natural attraction to and ability to consume technical and business knowledge alike. Surprisingly, many individuals suggested that a formal degree in technology or STEM was not a necessary requirement, but rather raw talent was more essential. Some suggested if you were focused on your education, you likely were unable to keep up with the pace of a startup and would fall behind quickly. Although the literature has suggested that one reason women are missing in tech is the lack of obtaining STEM-related degrees (LittleBits, 2019), participant comments that a degree is less important than talent suggests that formalized education may be only one avenue for women and men to participate in the high-tech industry. Potentially, the ability or desire to thrive in this type of industry (i.e. fast paced, high risk and high reward) is a consideration.

Demonstrate commitment. Participants demonstrated commitment to their jobs. They were dedicated, responsible, performance and goal oriented, passionate, ambitious, and life-long learners. Participants shared they worked long hours, took on multiple roles outside their capacity and core competency, pushed through to achieve business goals, and sacrificed time with family and friends. In many instances, individuals cited leadership growth through perseverance and forging forward despite both physical and emotional struggles as well as personal challenges such as learning disabilities and being opportunistically disadvantaged.

Participants spoke of successful leaders being responsible and executing business goals successfully. Most participants described themselves as having passion for their work that provided them an intrinsic reward beyond compensation. It was not surprising that the participants in this study described themselves as passionate. According to Ray (2019), having passion about their work helps leaders succeed because passionate leaders seek solutions rather than focus on problems; communicate well; and are open minded, compassionate, action oriented, and resourceful. Additionally, passionate leaders inspire employees to be more productive, committed (Grieser, 2020), and passionate themselves (Kay, 2015).

The data alluded to participant ambition through consistent overdelivering on assignments, taking on assignments outside their comfort zone, and putting pressure on themselves to get to the next level. Although the data did not specifically indicate a connection between this ambition and the intrinsic reward to which the participants referred, based on the tenets of self-determination theory, this connection is possible if

not likely. According to Ryan and Deci (2000), interest and internal rewards can be motivating factors of action.

While no one specifically identified the need to be a lifelong learner, the data strongly suggested that survival in the high-tech industry was highly dependent on this characteristic whether that learning consists of investing in self-improvement, learning from your own mistakes, learning and applying new technology, or learning the business.

Display strength. Participants described successful leaders as strong and described strong leaders as competent and intelligent individuals who tend not to be humble having those qualities. Confidence and decisiveness emerged as necessary characteristics of strong leaders. Embodying these characteristics was described as more a function of modeling confidence despite actually lacking confidence and as making decisions in the face of ambiguity. Without either of these characteristics, one's leadership position erodes. The participants' description of having to be decisive without having all the information necessary to make an optimal decision seems to mirror the fast pace of high tech where the business moves forward in response to continued change despite lacking change readiness.

Participants described how successful leaders learn from and deal with failure. Participants strongly espoused the importance of admitting mistakes, learning from those mistakes, and not allowing mistakes to define them. It was not a surprise to find that successful leaders avoid dwelling on and move forward from failure considering it "is what successful leaders do" (Turner, 2017, How Successful Leaders section). Rather than embrace failure, however, successful leaders "embrace resiliency and adaptability" (Bennis, Sample, & Asghar, 2015, p. 19). Equally important for participants was the

ability to make mistakes and the ability to learn from other people's mistakes. Strong leaders use mistakes as scaffolding material in creating their leadership framework. This idea of mistakes as scaffolding is supported in the literature that suggested successful leaders use their failures to focus on progression (Turner, 2017). Cultures of trust help enhance employee productivity and creativity and promote positive attitudes toward failure (Alston, 2014). However, according to (Schein & Schein, 2016), macro-culture elements such as blame and avoidance strongly dictate whether organizations who face failure

fire the product manager, reexamine the marketing strategy, reassess the quality of the research and development process, convene a diagnostic team from many functions to see what can be learned from the failure, or brush the failure under the rug and quietly move the good people into different jobs. (p. 165)

Thus, decisions made based on macro cultures are driven by both independent measures and correction systems (Schein & Schein, 2016).

Exhibit capacity for problem solving. Participants' shared that problem-solving capability was an important skill for leaders in high tech dictating their success or failure. Problem solving skills were described as skills you have inherently or develop by doing and figuring things out innately. Many participants described problem-solving as an exciting, creative, and sought-after challenge at which they excelled.

Are willing to be flexible. Participants suggested that rapid change is a core characteristic of high-tech companies. Not surprisingly, participants also described being flexible to change as key to their success. As the business evolves or responds to the

market and new technology, the need for individuals to change roles quickly and willingly or to take on new roles is imperative.

Are inclined to take risks. All participants who had worked in a startup cited risk taking acumen as key to leadership. Risk taking came in the form of risking your career, risking your investments, and risking overall failure. Other participants outside of startups also described risk taking as a characteristic of a successful leader in the form of taking on a new position, moving to a new opportunity without a support network, and making difficult choices when outcomes could be impactful on one's career.

Possess a strong sense of self. The participants overall suggested successful leaders possessed a strong sense of self. This sense of self materialized as being self-sufficient, self-promoting, and self-aware. Participants described being self-sufficient as taking on a job or different jobs at an early age to make money and as being able to support themselves without the need to rely on others. The latter appeared to be especially true for female participants who described being the breadwinner in their family, being an equal financial partner in their marriage, and teaching their daughters the value of independence and of being self-sufficient.

Self-promotion emerged as advocating for oneself, actively seeking out new opportunities, and maintaining a positive reputation that was inviting to others. The self-awareness characteristic surfaced as engaging in understanding one's strengths and leadership style, reflecting on past experiences and modifying one's behavior as necessary, and being open to critical feedback.

Theme 4. Multiple Factors Contribute to Company Culture

Most participants agreed that company culture was very important, and in fact some cited culture as a critical consideration in taking a new opportunity or bypassing it. The concept of company culture emerged as an embodiment of how the company engages and rewards its members. The participant's responses suggest that culture is not simply a dictated entity but rather a well-thought-out system that is a function of leadership and time. Interestingly, culture seems to be defined as both organically crafted (a feeling) and explicit (written, clear, and measurable). The dichotomy of these perceived attributes supports Schein and Schein's (2016) claim that culture is a complex construct dependent on understanding widely diverse values and rules of behavior.

As described by the participants, culture is better defined in stabilized and well-defined companies. In startups, culture is mostly undefined or loosely defined as the business itself is not stabilized and organizational structure is fluid early on. Participant responses suggest that the need for the company to adapt quickly to shifts in the business model preclude it from developing a solid and repeatable culture. Essentially, it is a culture of manageable chaos. As the startup matures and moves towards stabilized operations, its culture then begins to become more organized and identifiable. Culture has both positive and negative components.

Positive culture characteristics apply to both corporate and startup companies. Participants described positive cultures as goal and value oriented. These values must be demonstrable such that the gap between what the company espouses and how the company behaves is minimized. Culture drives individual behavior, and a positive culture supports its employees through successes and failures.

All participants also cited company investment in leadership development as a positive culture trait. Most referred to leadership development as a process rather than a specific program. The participants suggested the aggregate of experience and failures in one's career play critical roles in leadership development.

The structured leadership programs in which the female executives participated were considered helpful; however, not necessarily instrumental to their leadership development. Some female participants shared more recent programs their companies are doing or programs they themselves have launched to support and promote women. Based on early results of women gaining access to higher-level opportunities, these latter programs appear to have strong potential going forward.

Positive culture was also framed as an equity matter among individuals that both includes gender and yet goes beyond gender. Although the terms diversity and inclusion came up in the interviews, there did not appear to be a collective or common definition for these terms. This was not surprising as the literature on corporate culture shows that both diversity (Dobbin & Kalev, 2016) and inclusion (McCormick, 2007) often are either poorly or not clearly defined and as a result, used interchangeably without distinction.

Negative company culture characteristics varied between corporate and startup entities. Given that employee support and equity were positive characteristics of company culture, it was not surprising that lack of employee support and lack of equity emerged as negative company culture traits for corporate companies.

Participants cited negative corporate culture's lack a healthy work/life balance and noted employee needs are sometimes sacrificed as power struggles emerge in top tiers of the organization. Participants also suggested negative corporate cultures lack

equity, continue to have elements of gender bias, and lack gender diversity despite, in particular, tech giants' espousal of investment in women.

These participant perceptions are supported by the literature that indicates a lack of gender diversity in leadership positions (Eagly & Carli, 2007; Hoobler et al., 2011), especially in high tech (Corbett & Hill, 2015; EEOC, 2016), even though clear evidence exists of company commitment to promoting diversity and inclusion (Paikeday et al, 2019). In some cases, companies have hired CDOs or assigned CDO duties to established positions (Paikeday et al, 2019). In other cases, companies have implemented programs to promote women in the workplace (Carson, 2018; Gross, 2019) and have increased transparency in reporting diversity data (Gassam, 2019). Despite these efforts, women continue to be underrepresented in executive management positions (Carson, 2018; Dobbin & Kalev, 2016; EEOC, 2016; Gassam, 2019; Google Diversity, 2019; Hunt et al., 2015).

Some of the executives suggested that company leadership development programs that have been executed may not have been successful suggesting there is a need to evaluate program efficacy. These perceptions also are supported in the literature that points to poor implementation of programs as the underlying cause of companies' lack of diversity and inclusion (e.g., Dobbin & Kalev, 2016) and a need for deliberate program evaluation using thoughtful metrics (Bersin, 2019; Derven, 2013).

Negative characteristics of startup cultures tended to evolve around the nature of a startup's size, fast pace, and focus. The focus for startups is on revenue, getting things done quickly, and adapting successfully to changing requirements. There is little time for employee coaching sessions as each individual hired is expected to be able to execute

their growing workload with little supervision. The consequence of not being able to do so is being out of a job. Individuals can be successful in startup environments suggesting those who seek and are successful in this kind of environment may thrive in this type of business atmosphere.

Theme 5. Examples of Gender Roles and Stereotypes Were Evident

Gender roles and stereotypes emerged from the data for both men and women. In some cases, sources were external to the participants. For example, from a traditional social roles' perspective, many participants' mothers either dropped out of college or had to delay college aspirations because they got married or pregnant, reinforcing the female role model of mother as caregiver and modeling that having both a career and family was not obtainable. Also, female participants expressed that while pursuing higher education, stereotypical career options, such as teaching, had been projected onto them by others. Even among women who pursued a more technical educational experience, the data suggests that being female was a negative attribute in technical fields. Additionally, female stories about their career journeys were laced with family responsibilities. It is understandable that women recounted leadership opportunities in conjunction with fulfilling a gender role, such as picking up children from school or planning for child care to allow for career travel considering the data that show women, when compared to men, tend to take on more responsibility for managing their children's schedules and activities (see Pew Research Center, 2015). Furthermore, women spoke of changing their behavior or communication style in order to fulfil the expectation of a gender role or capitalize on agency as a leader. According to role congruity theory, changes in this regard are

expected of women in leadership roles and at the same time criticized (Eagly & Johannesen-Schmidt, 2001; Gervais & Hillard, 2011; Heilman et al., 2004).

Other sources of gender role perceptions and stereotypes were internally generated. For example, the female executives expressed, to some degree, a feeling of guilt with continuing to work after having children, suggesting women who continue to work are considered being neglectful of their motherly duties. This finding was reflected in the literature. According to the Pew Research Center (2019), 53% of working mothers say that working makes it harder for them to be a good parent. Of the female participants in the study who had children, women who continued to work seemed to defend this decision, assuring themselves that they did not violate their motherly role. These findings are supported by the literature that shows 84% of working mothers believe that working full time is best for them (see Pew Research Center, 2019). Some female executives also consciously indoctrinated their daughters about stereotypical or social role expectations in an effort to keep them from unwittingly falling into preconceived gender and social roles.

Male and female executives also viewed qualifications for leadership roles through different lenses. One female executive suggested that women in general perceive they have to be able to meet the role qualifications 100% before they apply for a new position. Men, on the other hand, appeared to apply for similar positions any time they thought they could meet any of the qualifications.

As role congruity contends, women historically have been cast in communal roles as caregivers and thus have not been perceived as fully capable of succeeding in leadership roles, which have been considered to be better aligned with male traits

(Davidson & Burke, 2000; Eagly & Karau, 2002; Koch et al., 2015; Lyness & Heilman, 2006; Sczesny, 2003). From this perspective, it is plausible that the female executives might lack confidence and consider themselves less capable. Indeed, the literature shows that when compared to men, women generally exhibit less confidence in their ability to perform successfully in leadership roles (e.g., Lerner, 2015).

However, confidence not only is a feeling of comfort one has with oneself, it is having the courage to act in the face of uncertainty (Lerner, 2015). It is the element of courage that inherently sets apart women who have not ascended to leadership roles from those who have (Lerner, 2015). Perhaps early in their careers, the female executives in this study were less courageous than they were later on in their careers after having achieved successes in lesser roles. Bandura (1977) would speak of this scenario in terms of mastery experiences and self-efficacy whereas successful experiences act as motivating forces in the repetition of future action.

It also is possible that the female executives did not necessarily lack confidence but rather were aware that they could be perceived as less capable (see Eagly & Karau, 2002) and thus felt the need to wait until they were fully, or perhaps even overqualified, for a particular leadership position before applying for it. As Lerner (2015) expressed of women, “Too many of us wait until we feel comfortable that all of our skills line up before we make a move, and as a result, we miss out on the big breaks needed to advance our careers” (p. 2).

However, it may just be that, considering the tenets of role congruity theory where women are perceived to be less capable of being successful in leadership positions, women are less willing than men to take the risk of being perceived negatively because,

for women, a failure may be more likely perceived and negatively evaluated as the result of a character flaw or lack of capacity in general rather than as an isolated failure from which they can move on without residual effect (see Snyder, 2014). This inference does not imply that the male executives necessarily displayed excess confidence or over-estimated their performance potential because they were unskilled or did not possess the metacognitive insight to develop an accurate or authentic assessment of their ability (see Dunning et al., 2003; Ehrlinger & Dunning, 2003; Kruger & Dunning, 1999) but rather that they would have less reason to consider the social and career implications associated with potential failure (Eagly & Karau, 2002).

Research Questions

Research Question 1

Research Question 1 was, “What factors, if any, do women and men who worked in the high-tech industry perceive contributed to their ascension into top level positions?” As noted in Theme 1, participants found early exposure to technology, or an early curiosity of it, as one factor that that led them to the technology industry where they ultimately ascended into top leadership ranks. A second factor of leadership ascension was noted in Theme 2; once connected to the high-tech industry, individuals described being afforded different avenues of support, including support in the business sector itself as well as support from family and friends. For women in particular, spousal support emerged as critical to their leadership ascension.

Participants discussed characteristics they possessed (Theme 3) as a factor in gaining access to higher level opportunities. Men and women alike placed emphasis on being committed, adapting to change easily, and a willingness to taking on a variety of

roles. Furthermore, confidence in the face of uncertainty and engaging in risk-taking behavior were common characteristics participants cited as factors to their success. Important emphasis was placed on possessing problem solving capabilities and incorporating personal failures into your leadership development versus allowing failures to define you and subsequently creating obstacles to leadership ascension.

Participants also discussed how company culture, described in Theme 4, supported their leadership ascension. Given that the influence of culture on leadership ascension is specifically addressed in Research Question 3, it is not discussed in detail here.

Research Question 2

Research Question 2 was, “How, or in what way, do women and men who worked in the high-tech industry perceive gender influences professional advancement?” The influence of gender on professional advancement did not directly emerge from the data for the male executives; however, it did emerge indirectly for the women executives (Themes 2 and 5). Women alluded to pregnancy and motherhood complicating career advancement and perhaps potentially having impact on career advancement; however, no one specifically stated that their gender or their motherhood status directly influenced their professional advancement.

Pregnancy and family focus were perceived to potentially limit opportunities. Women contemplated self-selecting out of opportunities due to being pregnant or focusing on starting a family. Women elected to fit in pregnancy between opportunities and expressed a fear that pregnancy would limit future career opportunities.

Motherhood itself was discussed as a joy and accomplishment but also a chore with regarding having to balance career and home. Women chose to avoid taking on more at work to afford them a better balance between career and family. Women tended to defend their accomplishments and career-first choices stating they had no regrets or that their children seemed well-rounded despite their absence implying, perhaps, they felt a sense of wrongdoing.

As suggested in the discussions of Themes 2 and 5, evidence of women hesitating to pursue dual roles as mother and leader concurrently and defending their career-first choices underlies tenets of social role theory whereas women's differentiated skills of motherhood lead to gender stereotypes of expected behavior (Eagly, 1987). Women's responses to motherhood and career imply that women may feel compelled to conform to their social role (mother) while also invoking role congruity theory of being incapable of pursuing professional advancement simultaneously (Davidson & Burke, 2000; Eagly & Karau, 2002; Koch et al., 2015; Lyness & Heilman, 2006; Sczesny, 2003).

Furthermore, these observations allude to the role congruity concept of decision-maker bias as the women may perceive the decision-maker (i.e. hiring/promoting entity) would reject them as suitable for a leadership role (Castilla & Benard, 2010; Eagly & Karau, 2002). Ultimately, a negative perception of the woman may arise for embodying leadership role expectations at the perceived expense of her social role (Eagly & Johannesen-Schmidt, 2001). Conversely, a negative perception of the woman may arise for embracing her social role making her appear unfit to be a leader (Gervais & Hillard, 2011; Heilman et al., 2004).

Research Question 3

Research Question 3 was, “How, if at all, do women and men who worked in the high-tech industry perceive that company culture, diversity and inclusion initiatives, programs, or policies influenced their ascension into senior leadership positions?”

Company culture (Theme 4) was noted as a major factor supporting career development and leadership opportunities. Given that participants described culture as an avenue to influence employee behavior, companies whose espoused values aligned with lived values were identified to be most supportive to leadership development. Given the characteristics of a startup company and its continual change model, diversity and inclusion initiatives and programs were nonexistent as the ability for a company to invest in formalized programs such as these are a function of time and sustaining profitability. Participants who worked in stabilized corporate companies; however, described, in general, the availability of diversity and inclusion programs and initiatives within the framework of supporting women and minorities. For women who shared they participated in formalized mentorship programs, none specifically identified their program as a major influence in their career development. However, many women talked about new programs that are better for grooming upcoming female leadership. These newer programs are described as successful or having high potential for success, especially when men are part of these programs.

Research Question 4

Research Question 4 was, “What are the greatest challenges, if any, for women and men who aspire to senior leadership positions?” Participants responded that there were multiple challenges throughout their careers. Some challenges came from direct

statements individuals made including negative company culture (Theme 3), lack of leadership development (Theme 2), lack of opportunity (Theme 2), and self-selection (Theme 2). The remaining challenges I inferred from the data include failure to manage failure (Theme 3) and, for women, motherhood (Themes 2 and 5).

One espoused challenge for both men and women aspiring to higher leadership levels was negative company culture as noted in Theme 3. In the corporate setting, negative culture culminated as a lack of employee support, which participants spoke directly about, and a lack of equity, which women alluded to. Being surprised that more women did not speak directly about equity, I question whether they feared being viewed as a weak leader.

As part of company culture, lack of employee support materialized as poor work/life balance and being subjected to intended and unintended consequences of political power struggles at the highest ranks. Lack of equity, characteristic of a negative corporate culture, was evident. Female executives noted some concerns that although companies espoused support for diversity and some had diversity and inclusion programs in place (e.g., mentorship, sponsors), these efforts failed to prompt change in the leadership landscape. Men and women alike questioned the efficacy of formal programs.

The chaotic and fast-paced nature of a startup company creates a negative culture that does not intrinsically support employee development creating a climate where employees lack a formalized support structure and organizational resources (e.g., supervision, coaching). As a result, the individual either proves their worth and gets to work even harder for a possible future payout or does not make the cut and is discarded.

Lack of leadership development was a challenge associated with being purposely held back from opportunities (e.g., either being passed over or not considered), getting caught in the crosshairs of organizational politics (e.g., power plays), and the inability to contribute innovatively to the business (e.g., leadership dismissing their ideas). Lack of opportunity is a barrier or challenge to leadership ascension due to the structured and hierarchal organization of corporate companies. Participants described having to wait for a higher-level spot to be vacated, generally by their boss, in order for the opportunity to advance or described being committed to a company where movement up the corporate ladder came systematically but slowly. Self-selection emerged as a challenge to leadership ascension for the participants. Participants expressed situations where they did not look for or take on a new opportunity for a variety of reasons including enjoying their current team and organizational culture, a desire to reduce travel requirements, a need to create a healthier work/life balance, and a desire to focus on family.

The inability to incorporate failure into the leadership learning and growth process tended to hinder leadership ascension. Participants spoke of making mistakes and managing failure as critical to success and alluded that individuals who cannot recover from their mistakes become defined by them subsequently disrupting, if not eliminating, future leadership opportunities.

As discussed in Research Question 2, motherhood did not manifest into a challenge to leadership ascension; the women in this study clearly ascended to leadership ranks. However, the data indicated that the female executives perceived that motherhood had the potential to influence their ascension into leadership. For example, some women alluded to concern of being pregnant or planning on becoming pregnant and how that

could hinder their leadership ascension. Others alluded to having to deliberately plan to start or expand their families in between or around opportunities suggesting that motherhood could have a negative effect on their leadership ascension.

Reflections on the Glass Ceiling

Having included men in a study on the glass ceiling may on the surface have seemed counter intuitive. How could men's perceptions inform women's experiences? My intention was that by including men in the sample, I could gain a broad understanding of the glass ceiling phenomenon. Is this phenomenon something only women acknowledge because they experience it, or do men also have insight about factors they perceive hinder women's ascension into leadership positions that could be used to inform both practice and the field of leadership and education sciences? Because I allowed the data to emerge organically, the data did not provide a clear indication of men's perceptions about the glass ceiling per se. However, the data did provide an understanding of the similarities and differences between the leadership journeys and experiences of the female and male executives in this study. Although much of the data were indistinct with regard to gender, some distinct experiences were uncovered for the female executives in this study.

No distinct differences were evident between the female and male executives with regard to their paths to high tech. The majority of participants, regardless of gender, did not actively seek to enter the high tech sector. Additionally, both female and male executives referred to support from the business sector as a factor supporting leadership ascension. No obvious distinctions were evident between the executives with regard to the type of mentorship relationships in which the executives were engaged and the degree

of value gained from those relationships. Both groups of executives also (a) found networking valuable, (b) perceived the availability of opportunities critical to leadership ascension, and (c) considered lack of leadership support a barrier to ascension. No conspicuous differences were noted among the executives with regard to personal characteristics associated with successful leaders. Perceptions about what distinguishes positive company cultures from negative company cultures were generally similar among the executives. The most notable differences between positive and negative company cultures were related to start up versus corporate environments rather than to gender.

The data that spoke directly to the glass ceiling phenomenon were in relation to women's paths to leadership, negative company cultures, and gender-based expectations. Specifically, women's paths to leadership varied from men's with regard to levels of import assigned to spousal and family support. Whereas all of the female executives clearly expressed the significance of spousal and family support in their ascension to leadership positions, only three of the male executives referred to family support and, when they did, did so both briefly and indirectly. Additionally, although the data showed that female executives perceived motherhood, inclusive of female guilt, to be a challenge to leadership ascension, none of the male executives expressed that fatherhood was similarly challenging. In both instances, this distinction is likely due, at least in part, to women's immediate biological responsibility for carrying and delivering children as well as their inherently greater involvement in child rearing responsibilities.

The female executives also differed from the male executives with regard to their perceptions about negative company cultures. Whereas all the executives acknowledged lack of employee support as a negative characteristic of corporate culture, only female

executives identified inequity in company culture as a negative characteristic. Not surprisingly, only female executives spoke to ways in which they navigated these negative corporate cultures.

Finally, only female executives spoke about personal experiences with gender-based expectations. Although two of the male executives did acknowledge that their mothers experienced gender-based expectations with regard to their educational careers, they did not provide examples of personal experiences they themselves had in this regard. Female executives, on the other hand, did relay personal experiences in which they were expected to follow specific educational trajectories or to behave in certain ways as working mothers.

Recommendations for Practice

This study revealed some distinct characteristics between established companies (i.e., corporations) and startup companies with respect to culture and the resource investment into diversity and inclusion initiatives. This section describes opportunities for both corporate and startup companies to implement diversity and inclusion in practice taking into account differences in these business models. Some of the data collected in this study provide hints into potential avenues for increasing the presence of women in the high-tech sector. Where the data were thin, the literature provided additional insight in this regard.

Start up

Startup companies are generally cash poor and experience frequent change in their fight for survival. As such, startup companies do not have the resources to devote to diversity and inclusion type initiatives. However, the literature suggests diversity and

inclusion are important ingredients for improved business performance (Hunt et al., 2015; Paikeday et al., 2019) and reduced discrimination litigation (Jacoby 2005; Joiner & Weiner, 1942; McCormick, 2007). Thus, startup companies can benefit from diversity and inclusion, especially if integrated in a fashion that aligns with the nature of a startup business.

Throughout their formative years, startup companies seek investment capital, or “seed money,” from a variety of sources, including venture capitalists and angel investors. Considering this process, investors could serve as an avenue for helping startups practice diversity and inclusion. Champions of women could develop a targeted awareness campaign to educate venture capitalists and angel investors on the tangible benefits of diversity and inclusion for startups. Ideally, with improved awareness of the value of including women in startup ventures, those venture capitalists and angel investors would promote the inclusion of women in startups by tying funding to diversity goals.

Awareness of the value of including women in startup ventures also could be promoted through institutions of higher learning. Because those in leadership positions in startups are typically those who founded the company and because fewer women create startups, there are inherently less women in leadership positions. If high-tech startup entrepreneurs were more cognizant about the value of inclusion and diversity in their leadership team, they might be more likely to actively recruit female team members as part of the initial team. Additionally, my study hinted at women’s potential lack of confidence in themselves as a reason they do not more aggressively pursue leadership roles. Understanding this phenomenon, it is also possible that fewer women head startups

because they lack the confidence in their ability to do so. Integrating diversity and inclusion awareness as part of the curriculum for STEM and business-related classes is a possible avenue for raising awareness and encouraging thoughtful recruitment of colleagues as well as potentially inspiring confidence in women to start and/or join startup companies.

Corporate

As the female participants in this study stated, mentorship was helpful but not a springboard to the next leadership level. Furthermore, 80% of the women in this study cited a sponsor, a boss, or another person in a position of power as the catalyst in their career progression. Indeed, Hewlett (2013) summed up the distinct value of a sponsor over a mentor in her book *Forget a Mentor, Find a Sponsor*. This is sound advice considering that although both mentor and sponsor roles assist in the personal development of an individual, a sponsor goes one step further by connecting an individual to tangible opportunities that advance their career (Ang, 2019). One action corporations could take is to supplement current or new mentorship programs for women on the leadership track with sponsorship programs. Implementing sponsorship programs not only benefits high-potential women but also benefits the business through employee retention of high performers (lower employee turn-over), improved organizational productivity realized from the employee's enhanced skill and leadership development, and employee engagement in meeting financial and other organizational goals (Ang, 2019).

Although sponsorship programs are beneficial to women already employed, the statistics show there are few women overall in the high-tech industry. There is a clear

need to attract more females to the field. As the data in this study showed, early exposure to technology was a significant influence for participants to pursue STEM-related degrees and careers. Unfortunately, girls are less likely than boys to have early exposure to STEM concepts (Littlebits, 2019). Corporations could address this gendered obstacle by generating early STEM-related interest and potential future career opportunities for girls and young women through targeted STEM programs focused on both skill and leadership development. FE 4's nonprofit of 18 years is a perfect example of how such a program could work to foster skill development and a sustaining interest in STEM for young girls from early elementary age on. She has created what she coins a "sustaining chain of mentorship" that addresses female role model challenges identified in the literature, specifically with respect to cognitive gaps between the mentor and mentee. Corporations could partner with community school districts that serve diverse student populations to replicate this or a similar model and thereby generate STEM-related interest for girls. Exceptional program participants could be awarded an internship at the sponsoring corporation.

Limitations

This study was a qualitative study of 5 male and 5 female professionals who have worked in the high-tech industry in the United States. Thus, this study's design did not allow for any claims of causality between life experiences and leadership, and the findings, in no way, are generalizable in the traditional scientific sense, which necessitate large, robust sample sizes that are representative of the population. Given that the focus of this study was to explore individual experiences in the hopes of generating potentially new hypotheses that explain the similarities and differences in how women and men

attain leadership, the generalizability of this study was less important than the depth of the exploration and the personal life experience of each participant.

As mentioned above, the information-rich complexity of the participants' leadership journeys provides value above and beyond that of generalization. As Donmoyer (1990) suggested, the alternative conceptualization of generalizability "is rooted in a conception of experiential knowledge" (p.186). This detailed knowledge allowed me to identify unique individual experiences that may generate new areas of research on men's and women's attainment of leadership positions.

Another limitation of this study was the sample selection process used to procure participants. Although LinkedIn is a robust and reliable professional network and I was able to identify ample potential participants, few executives to whom I reached out responded to me. When forced to change my participant recruitment approach, I turned to networking via two prior colleagues who contacted potential participants on my behalf. By happenstance, while searching on LinkedIn for an unrelated purpose 2 days after securing the 10 executives who participated in this study, I came across a post by one of the executives who agreed to participate in my study. In short, the discussion pertained to the scope of junk emails he receives as a professional with a high-level title—he provided a snapshot of his junk email folder to support his argument. With this hindsight, I can appreciate the limitation of using the messaging option of LinkedIn to recruit participants.

Additionally, my sample also was a potential limitation because the female participants were successful executives and had metaphorically crashed through the glass ceiling. This is an important sampling distinction as it is possible that the women in this

study may have consciously or subconsciously lessened the degree of perceived impact of the challenges they faced earlier in their careers. Whereas the women spoke confidently that family, and specifically motherhood, did not pose a challenge to their leadership ascension, their stories suggested that at the time they were ascending the ranks, they were concerned about the potential implications of being pregnant or being a working mother. Had my sample included individuals in middle management (e.g., those at the levels just below the glass ceiling), it is possible that results may have indicated more differences between men and women.

Also, this study was limited by the interview approach employed which allowed gender concepts to organically emerge from the interview prompts and from the natural narratives of the participants. Direct questions asking the participant to surmise how gender influenced their career or those around them were avoided purposely because discussions of gender and diversity in the workplace have been long standing with incremental progress. Recently, gender-based social justice issues highlighted in mainstream media have been pointed at entertainment sectors, including sports, film, and music, and at employment sectors, including government and Silicon Valley, the high-tech capital itself. This attention has created awareness as well as escalated calls for reform. As such, direct questions that may have been perceived as off-putting or had potential to shut down the discussion were avoided, allowing the male and female participants to lead the discussion to its final destination.

It is possible that if I had been more direct about the gender focus of the study, the data would have revealed more about gender and the glass ceiling. However, given that one male executive's feedback to my written summary of our conversation was simply

how surprised he was that he had shared so much with me, I am inclined to believe that perhaps he may have expected or intended to be on guard during the interview and thus that my initial concern in this regard was warranted.

With a 20-plus year corporate career in the technology industry and given the niche industry of technology, it was not surprising that I knew two of the participants. One I invited to participate myself. The other I did not recognize until he reminded me. Because I knew these two executives, I recognized the potential for my data analysis to be questioned as biased. However, I consciously and continuously maintained awareness of the potential for bias while analyzing their data to avoid projecting expectations onto the data and used a second coder to confirm my findings. Therefore, I concluded that my connections to participants did not, at least overtly, bias my findings and thus were not a limitation in this study.

Similarly, although my own subjectivity and closeness on the subject matter was crucial to this study, it also could have been perceived as a potential limitation. During my corporate career in the technology industry, I directly experienced the glass-ceiling effect and subsequently cofounded an internal organization to further women's leadership within information technology. My desire to research gender-based leadership attainment challenges lay in the desire to fix this societal issue and allow for true equal access to leadership positions. Thus, my personal experience as an executive could have skewed my objectivity. However, as was the case with the executives whom I knew, I was cognizant to eschew bias in my data analysis and confirmed the fairness of my analyses with a second coder. Ultimately, I concluded my personal experience and history in the high-tech sector enhanced, as opposed to limited, my analysis of the study data.

Recommendations for Future Research

This study was an exploration of high-tech executives' leadership journeys. A significance of this study was the generation of deeper insight into similarities and differences between men's and women's leadership ascension, specifically within the high-tech industry, which has one of the lowest participation rates of women throughout all ranks. Results shed light on the experiences of men versus women in gaining access to leadership roles while pointing to future research that may further contribute to an understanding of the nature of the glass ceiling for women within this industry.

Researchers have acknowledged that lack of women in leadership roles may be partially be attributed to personal choice (e.g., Wang et al., 2013; Siniscalco et al., 2014). Results in this study showed that this was true not only for the female executives but for the male executives as well. Quantitative research could be useful for gathering data to better understand how pervasive this phenomenon is in the high tech sector. Qualitative research could be useful for generating insight to more fully understand the distinct roles of perceived priorities and sacrifices as elements of personal choice in the current leadership landscape with regard to the dearth of women.

My desire to allow discussions about gender inequity to emerge organically limited the depth of data I collected on this topic. Although literature exists on the idea that women's upward mobility has been limited based on their gender (e.g., Cotter et al., 2001; U. S. Glass Ceiling Commission, 1995), there remains a lack of literature exemplifying the ways in which women experience and, potentially overcome, gender inequities. Qualitative research could help fill this gap in the literature with robust data in this regard.

Although the demographic data I collected in this study were only intended for descriptive purposes and in general did not have any special significance or influence on my interpretation on the data, two aspects of the participants' educational backgrounds caught my attention. First, only 60% of participants had degrees in STEM-related areas. This phenomenon may have been influenced by participants' ascension to leadership through a startup opportunity. Quantitative research could help provide clarity regarding the extent to which degrees in STEM-related fields are relevant to leadership ascension in high tech. Qualitative research would be valuable in understanding executives' perceptions about the value of degrees in STEM-related fields with regard to leadership ascension in high tech. Second, all five female executives in this study held master's degrees yet only one male executive had the same degree. It is unclear whether participants' credentials were related to their entrance into high tech via a startup or as a circumstance of the female executives' perceived need to be highly qualified in their fields in order to be viewed as a viable candidate for employment and leadership ascension, a potential exemplification of role congruity theory in action. (See previous discussion on this phenomenon in Themes 3 and 5). Qualitative research in this area could increase awareness of the factors that contribute to women's decisions to complete advanced degrees in pursuit of careers and leadership positions in high tech. Data from these types of studies could be used to better understand best practices for guiding young female students to careers in STEM-related fields and in attaining leadership positions in those fields.

The final suggestion for future research combines both concern for gender inequity and lack of understanding of the influence of startup culture on diversity and

inclusion. Participants in this study clearly expressed the negative association between startup culture, and diversity and inclusion. Unlike established corporations that have ample human resources, startups must rely on a small group of individuals to accomplish a great number of tasks across multiple job functions. This situation sets up a scenario where time to focus on developing a diverse and inclusive workforce is essentially nonexistent. This logic seems rational. However, it seems equally rationale that at least some time could be committed to considering gender equity in team recruitment during the initial establishment of a startup, especially given the literature demonstrating the value of having a diverse and inclusive workforce (e.g., Catalyst, 2004; Derven, 2016; Hunt et al., 2015; McCormick, 2007; Paikeday et al., 2019; Rizy et al., 2011). Future research is warranted to explore the decision-making processes associated with workforce planning when establishing a startup. Data from such exploration could guide startups in establishing more diverse and inclusive teams from the onset of their inception, thereby decreasing the potential for workforce homogeneity as the company grows.

Although not specifically motivated by the data in this study, it would be interesting to study the glass ceiling phenomenon in other industries. The Glass Ceiling Act of 1991 and the subsequent creation of the Glass Ceiling Commission to investigate barriers to women's organizational advancement were not intended to be industry specific. The assumption is that the glass ceiling phenomenon occurs in all types of organizations. However, the similarities and differences between barriers to women's organizational advancement in varied industries are not known.

Conclusion

In the Census Bureau's second published report on women's occupational distribution, Dempsey (1933), the report author, a woman, recognized the topic as "a subject of profound significance whether from the point of view of workers, of employers, of students of social trends, or of any one of a number of other groups" (p. v). She went on to equate the report's value "among the most important of the bureau's publications" (p. v). Although World War II prompted critical changes in the workforce landscape in terms of female representation (Schweitzer, 1980), since that time, despite (a) increased social awareness of the need for diversity and inclusion, (b) understanding of the benefits of a diverse and inclusive workforce, and (c) conscious effort on the part of organizations to increase diversity and inclusion, still, women are underrepresented in leadership positions, especially in high tech. What, one might ask, will be enough to drive change?

Within organizations, a closer look at diversity and inclusion programs may be warranted. When companies invest millions of dollars in human and fiscal resources to transform their workplace landscapes into ones that are diverse and inclusive yet fail to do so (Carson, 2018; Gross, 2019) or result in the resignation of the company's CDOs (Nieva, 2019), lack of diversity and inclusion cannot be blamed on the absence of effort; certainly the problem lies in the effectiveness, or lack thereof, of the diversity and inclusion programs and structures that are in place (Dobbin & Kalev, 2016). However, companies often fail to identify standards by which they can measure diversity and inclusion or evaluate program effectiveness (Bersin, 2019; Derven, 2013). Without such

systems in place, program transformation will not occur and change cannot be achieved (Dervin, 2013).

According to Siniscalco et al. (2014), change cannot be achieved by organizational reliance on established antidiscrimination legislation or through a “crack down on employees” (p. 2), both of which suggest an inherent bias as the underlying cause of the glass ceiling. Although bias may exist and should be eradicated, Siniscalco et al. suggested that greater attention be focused on better understanding the problem. However, they did recognize the challenges of exploring issues associated with the glass ceiling, such as the inability to discern women’s personal choices in organizational decisions versus either implicit or explicit bias generating from employers themselves. As such, solutions must be tailored to each organization (Siniscalco et al., 2014).

However, “business does not operate in a vacuum. It reflects the attitudes and conditions of society as a whole, and other segments of society must also contribute to ending the glass ceiling” (U.S. Glass Ceiling Commission, 1995, p. 11). Over a quarter of a century ago, the U.S. Glass Ceiling Commission (1995) called upon “schools, the media, community organizations and other institutions in helping to bring down the glass ceiling . . . through open and continuing dialog” (p. 11). Yet, almost 2 decades later, Siniscalco et al. (2014) recognized the ongoing need to promote social dialog as a means of shattering the glass ceiling. Today, in 2020, little has changed in this regard.

Recent federal support for early childhood STEM education (see Committee on STEM Education, National Science & Technology Council, 2018) and a call by leaders in education for greater attention to the infusion of technology into the learning

environment (Belastock, 2019) demonstrate commitment to such dialog from the education sector and may support efforts for early exposure to technology.

Results of this study suggest that having access to or being exposed to technology influenced participants' desire to pursue and achievement of a technical or STEM-related degree, findings that are supported in the literature (e.g., LittleBits, 2019). This finding is important considering that, when compared to boys, girls are less likely to be exposed to STEM concepts during their elementary and middle school years (LittleBits, 2019) and to graduate high school without a solid grasp of STEM concepts (Elliott, 2015).

Although the focus of the drive for pedagogical change is the development of spaces that provide opportunities for universal instruction and encourage collaboration and personal learning that will engender future generations of innovators (Belastock, 2019), such change would provide early exposure nonetheless and could serve as a means of attracting greater numbers of women to the high tech sector. However, there may be other variables to consider.

According to Wang et al. (2013), workforce gender differences in STEM-related fields are not a matter of ability but rather choice whereas individuals who excel in both math and verbal skills have a broader range of career options compared to those who excel in math but have only a moderate level of verbal skill (Wang et al., 2013). Because girls more often than boys excel in both math and verbal skills (Wang et al., 2013), these data suggest that early exposure to technology may not be enough to increase pursuit of STEM education and careers for girls with both strong math and verbal skills. To attract this particular population to high tech, conscious effort may need to be paid to active recruitment into the high-tech sector. In light of Wang et al.'s (2013) research on the high

verbal skills connection to career choices outside of STEM, educators Olson and Gross (2013) suggested introducing storytelling into science education. Other researchers have focused on the value of role models in STEM fields but have noted caveats.

Considering the tenets of role congruity theory (see Eagly & Karau, 1991), communally oriented students, stereotypically girls and young women, who perceive success in STEM fields to be reliant on greater expression of agentic characteristics and lesser expression of communal characteristics may be less likely to pursue STEM-related careers (Fuesting & Diekman, 2017). The obvious solution in this case is to increase the number of communally oriented models in STEM-related fields, presumably women (Fuesting & Diekman, 2017). Ironically, this solution, poses a Catch-22 scenario where role models are needed to generate more role models.

Additionally, female role models in STEM may have a counter effect on girls. When (a) there is too great a cognitive gap between young female students and STEM role models, such as scientists; (b) young female students are not developmentally mature enough to fully understand their potential (i.e., when they are in middle school); (c) young female students are not provided the opportunity to develop long-term relationships with role models (Bamberger, 2014), and (d) role models are perceived to be too feminine, young female students are more likely to be demotivated by their interactions with role models (Betz & Sekaquaptewa, 2012). Thus, although having potential to encourage young female students to pursue education in STEM-related fields, the use of role models necessitates further exploration.

Perhaps by attracting more girls to STEM education early on and subsequently guiding them to careers in STEM-related fields, in part through fitting role models, more

women would be present in the high tech workforce. With a greater pool of female applicants for leadership positions, it is likely that more women could and would break the glass ceiling and ascend to leadership positions. Increasing the numbers of women in leadership positions in high tech is especially critical because high-tech industries account for almost 10% of all jobs and provide over 18% of the annual economic output in the United States (Roberts & Wolf, 2018). Through 2026, they are expected not only to maintain their employment share but to increase their total share output (Roberts & Wolf, 2018). Given the attention gained from this sector of the market, and its perception as an example of successful organizational structure, it is imperative that the current pale, male, and stale standard not be allowed to endure but rather that it be replaced by a model that is diverse and inclusive where women in leadership roles are not noted for their uniqueness but instead not noticed out of normalcy. This ideal, however, will require a broad sense of social responsibility. It neither can be reached with myopic vision nor through relegation of the obligation to a single CDO. It certainly cannot be reached using Engineer Barbie™ and pink Legos™.

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APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL

Date: 11-23-2019

IRB #: IRB-2020-66

Title: The Glass Ceiling: Exploring the Leadership Journey of Men and Women in High-Tech

Creation Date: 10-27-2019

End Date: 11-7-2020

Status: **Approved**

Principal Investigator: Shelia Krueger

Review Board: USD IRB

Sponsor:

Study History

Submission Type	Initial	Review Type	Expedited	Decision	Approved
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Key Study Contacts

Member	Robert Donmoyer	Role	Primary Contact	Contact	donmoyer@SanDiego.edu
Member	Shelia Krueger	Role	Principal Investigator	Contact	Sheliak@sandiego.edu

APPENDIX B

INTERVIEW CONSENT FORM

**University of San Diego
Institutional Review Board****Research Participant Consent Form**

For the research study entitled:

**Factors Influencing Ascension into Senior Leadership Positions Within the
High-Tech Industry****I. Purpose of the research study**

Shelia Krueger is a student in the School of Leadership and Education Sciences at the University of San Diego. You are invited to participate in a research study she is conducting. The purpose of this study is to explore the journey individuals have taken in gaining a leadership role within the technology industry over the last decade and to understand the perceived factors that influence the ascension of men and women into leadership roles.

II. What you will be asked to do

If you decide to be in this study, you will be asked to:

Participate in a private interview about your experience of being a corporate executive within a technology-based organization. You will be audiotaped during the interview. Your participation in this study will take a total of 60 minutes with an opportunity to review a transcript of the interview for accuracy, for an additional 10 to 20 minutes.

III. Foreseeable risks or discomforts

This study involves no more risk than the risks you encounter in daily life.

IV. Benefits

While there may be no direct benefit to you from participating in this study, the indirect benefit of participating will be knowing that you helped researchers better understand factors impacting men's and women's participation in senior leadership roles within the technology industry.

V. Confidentiality

Any information provided and/or identifying records will remain confidential and kept in a locked file and/or password-protected computer file in the researcher's office for a minimum of five years. All data collected from you will be coded with a number or pseudonym (fake name). Your real name will not be used. The results

of this research project may be made public and information quoted in professional journals and meetings. Should a quote by you be used, you will be identified by pseudonym only.

VI. Compensation

You will receive no compensation for your participation in the study.

VII. Voluntary Nature of this Research

Participation in this study is entirely voluntary. You do not have to do this, and you can refuse to answer any question or quit at any time. Deciding not to participate or not answering any of the questions will have no effect on any benefits you're entitled to, like your health care, or your employment or grades. **You can withdraw from this study at any time without penalty.**

VIII. Contact Information

If you have any questions about this research, you may contact either:

1) Shelia Krueger

Email: sheliak@sandiego.edu

Phone: 619-933-5239

2) Robert Donmoyer

Email: donmoyer@SanDiego.edu

Phone: 619-260-7445

I have read and understand this form, and consent to the research it describes to me. I have received a copy of this consent form for my records.

Signature of Participant

Date

Name of Participant (Printed)

Signature of Investigator

Date

APPENDIX C

INTERVIEW PROTOCOL

This is a guide and will not be strictly followed. It is intended to ensure pertinent areas of interest and the research questions itself are addressed over the course of the interview.

The interview approach will be funnel-like with the interviewee first being asked about their career ascension and what specifically they perceived propelled them into the leadership role they held, followed by more specific questions about company culture and lastly, gender.

The first step is to confirm written consent for the interview followed by starting the audio recording.

Recorder is turned on

This interview is being conducted by Shelia Krueger for her dissertation study on influencing factors of gender for leadership ascension in technology industries. I am interviewing XXXX on MM/DD/YYYY at HH:MM. Thank you for your participation in this study.

Per your previous consent, this interview will be recorded for transcription purposes. As discussed, your identity will not be disclosed as part of this research study and will be kept confidential. Do you have any concerns or questions before we move forward with the interview?

This interview is intended to last about 60 minutes and no longer than 90 minutes. If additional information is needed, we will mutually discuss and agree how and when future contact can be made to gain the needed information. Are you ready?

Broad Funnel Question

I'd like to have you share, in your own words, an overview of your journey you took to achieving an executive leader role within the technology industry? Maybe you could begin by telling me how when and what inspired you to pursue tech and how you got into the industry in the first place.

If they do not mention things that they perceive led them to a leadership position, then ask:

What factors, personal, professional, or social do you feel positioned you as a good candidate for a leadership role? (RQ1)

Did you have any concerns or doubts about your fit for a leadership role? (RQ1, RQ2)

What factors (behaviors, traits, characteristics, actions) do you feel influenced the decision makers in your company to give you that opportunity? (RQ1, RQ2)

Tell me what it is like to be a (man || woman) in a leadership position surrounded by mostly male peers in a high performing tech company? Was there a difference in culture/meeting dynamics with men only versus men and women? (RQ1, RQ2)

What professional goals or plans did you have to work your way up? (RQ1, RQ2, RQ4)

What professional opportunities do you ultimately cite as the catalyst to getting you to your leadership position? (RQ1)

In your leadership role, can you tell me the composition of women and men within your organization (subordinates)? And within your peer environment?

Industry Specific Funnel Question

In your career over the last decade, what do/did you perceive was the culture of the company you worked for? In what ways did it manifest itself (written, oral, unspoken)?

What do/did you perceive was the culture of the company you worked for? In what ways did it manifest itself? How would you characterize company culture with respect to gaining a leadership role? (RQ3)

In what ways did the company culture cultivate or stagnate individual's opportunities to gain a leadership role? Can you give me an example? (RQ3)

In what ways did the company culture influence, if at all, the leadership ascension of women? (RQ3)

What was the gender division within top leadership? Why do you think it was that way? (RQ3)

Gender Specific Funnel Question

In what ways, personal, professional, or social, would you characterize your experience in ascending into leadership versus a (person of the opposite sex)? (RQ1, RQ3, RQ4)

If they feel there is no difference in career ascension experience, or are vague, then ask

Do you feel men and women have an equal opportunity to climb the corporate ladder? Why or why not? (RQ2, RQ4)

How did you feel as an executive with (a proliferation of men || lack of women) in leadership roles surrounding you?

What do you feel accounts for the presence of more men versus women in leadership roles within the technology industry? Why? (RQ2, RQ4)

Do you feel gender has any influence over one's chance of being promoted? Why or why not? (RQ2, RQ4)

What challenges do you feel/have you observed that woman specifically face in obtaining a leadership role in the technology industry? Why or why not? (RQ2, RQ4)

Nearing the end, ask this spontaneous question: With everything you have learned and experienced in your leadership journey, what is the main difference, if any, for men versus women in gaining a leadership role? (RQ1, RQ2, RQ3, RQ4)

Is there anything about your career that you would like to add that has not already been addressed? (RQ1)

We are in the home stretch! I have just a few demographic questions to ask of you.

Gender Male, Female, Other	
Birth Year	
Highest Level of Education (Some High School, High School/GED, Vocational, Some College, Associates, Bachelor's, Master's, Doctorate, Specialist (EdS), Professional (JD)	
Field of Education/Study	
Race &/Or Ethnicity	
Highest/Last Held	
Years of Experience within field / overview Professional / Hobby / Internship	
Marital Status & Years Married	
# of Children Biological, adopted, step, foster	

Is there anything I didn't ask that would be helpful in understanding your leadership journey? If you have nothing else, that concludes our interview. Thank you very much.
Recorder off.

Date: 11-23-2019

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Key Study Contacts

Member	Robert Donmoyer	Role	Primary Contact	Contact	donmoyer@SanDiego.edu
Member	Shelia Krueger	Role	Principal Investigator	Contact	Sheliak@sandiego.edu