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INVESTIGATING THE SELF-EFFICACY AWARENESS OF BLACK FEMALE
TECHNOLOGY LEADERS

A Dissertation Presented
to
The Faculty of the School of Education
Department of Leadership Studies
Organization and Leadership Program

In Partial Fulfillment
Of the Requirements for the Degree
Doctor of Education

by
Marie Roberts De La Parra

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THE UNIVERSITY OF SAN FRANCISCO

Dissertation Abstract

Investigating the Self-Efficacy Awareness of Black Female Technology Leaders

Black female technology leaders lack leadership opportunities, which affects their self-efficacy and is a crucial concern. Self-efficacy is based on the concept that an individual's belief in what they can achieve influences their actions and how much effort they invest in the selected action. Self-persuasion can provide high or low self-satisfaction as a determinant for creating incentives for success or failure and converting thoughts and emotions to actions. Limited research has investigated the mindset, the thought patterns, and the self-belief undertaken by Black females in the world of technology. Despite limited amounts of research, data suggest that Black female leaders in technology develop self-belief, self-influence, and self-empowerment for self-sustainment to face and overcome the challenges placed before them in their occupational environment.

With 10 Black female technology leaders from various parts of the United States, this qualitative study was conducted based on data from a demographic interview questionnaire. Using NVivo, the researcher analyzed (a) the experiences, successes, challenges, barriers, needs, and awareness of the participants and (b) the extent to which the participants articulated a connection between mental fortitude and the workplace environment. Each examination was aimed toward the individual's self-belief, self-perception, and self-discernment of their conduct to identify transformative measures to remove disparities in the technology atmosphere. The data are organized into six encompassing themes (a) history of working women, (b) history of African American

women in technology, (c) factors of leadership that demotivate hiring Black females, (d) barriers for Black females working in technology, (e) ways to promote self-efficacy and self-awareness, and (f) future leadership roles for Black females. This study provides crucial insight into the fundamental survival-to-thriving techniques Black female technology leaders associate with developing success within the workplace environment, where too many Black females did not find a pathway to high attainment. This research study was composed to showcase the lived experiences of Black female technology leaders who honed their self-belief expertise, moving beyond perceived and actual barriers to create an inner-winner strategy. The arduous journey of self-belief and self-awareness instills self-knowledge that makes the individual their most potent.

This dissertation, written under the direction of the candidate's dissertation committee and approved by the members of the committee, has been presented to and accepted by the Faculty of the School of Education in partial fulfillment of the requirements for the degree of Doctor of Education. The content and research methodologies presented in this work represent the work of the candidate alone.

Marie Roberts De La Parra
Candidate

May 15, 2021

Dissertation Committee:

Dr. Patricia Mitchell

May 15, 2021

Dr. Walter Gmelch

May 15, 2021

Dr. Susan Katz

May 15, 2021

DEDICATION

This dissertation is dedicated to my Creator, forever first in all that I do, who placed words and insight into my mindset that illuminated a pathway of living in gratitude. Each time my efforts seemed to be derailed due to life's happenings when I thought and feared I had nothing left in my soul and spirit to give, you reinvigorated me, showing me a way, the way, Your way. This piece of work is done as a catalyst for what you have prepared for me next.

When I was 22, my father, Tommy Roberts Jr. passed away from a manmade airborne environmental toxin, Sarcoidosis. Before leaving his physical presence, I was able to see and experience his brand of leadership, which taught me so much; it took me many years longer to understand how his life would be a key beacon in my personal journey to open doors and remove the perception of barriers for myself and others, just as he did. I miss you every day as I strive to honor your remembrance in my heart, thoughts, and dreams. My child, B, whom he did not get to meet, has been a constant inspiration and someone I continue to learn from, teaching me that you are never too old to grow up, and that it is never too late to head back to school; I did, thanks to you. Before his passing, my grandson Pete—a blue Boston terrier who is ingrained in my memory—always provided and taught me unconditional love. I continue to pay it forward.

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CHAPTER I

THE RESEARCH PROBLEM

Introduction

It is estimated that 12.1 million people worked in the field of technology in 2019 (Ostrowski, 2020); however, Black females represent just 3% of those employed in technology (Ashcraft, McLain, & Eger, 2016; Daley, 2021). Although the technology industry saw revenue of 1.35 trillion dollars in 2017, with employees having an average income of \$132,223, Black females' gains in this field are at a standstill (National Telecommunications and Information Administration, 2019). The 2019 estimation, presented on April 21, 2020, by CompTIA, states that 12.1 million people in the U.S. workforce are in the field of technology (Ostrowski, 2020). With the professional world significantly employing White men, opportunities for people of color are left at an all-time low in the United States; this lack of opportunity for Black women has remained the same for many decades, regardless of the venue (Daley, 2021). Black female technology leaders have even fewer opportunities to reach top executive leadership levels (Ashcraft et al., 2016), hence establishing barriers for these leaders.

The fact that Black female technology leaders lack leadership opportunities, which affects their self-efficacy, is a crucial concern. Self-efficacy is based on the concept that an individual's belief in what they can achieve influences their actions and how much effort they invest in the selected action (Bandura, 1978a). Bandura (1978b), who developed the self-efficacy concept, stated:

Psychological procedures, whatever the form, alter the level and strength of self-efficacy.

It is hypothesized that expectations of personal efficacy determine whether coping

behavior will be initiated, how much effort will be expended, and how long it will be sustained in the face of obstacles and aversive experiences. (p. 139).

Bandura further discussed the factors central to self-efficacy: “Central to the construct of self-efficacy are the presumed major sources of information, which contribute to its development and modification: performance accomplishments, vicarious experience, verbal persuasion, and physiological states” (p. 263). Bandura also asserted that the cognitive process at the core of self-efficacy is influenced by active, vicarious, and emotive factors and the engagement of performance.

Many factors lead to Black Americans’ lack of self-efficacy. According to Bandura (1991b), each person forms beliefs about themselves and performs based on what they believe, creating the envisioned outcome. Bandura also argued that an individual’s goals are based on motivation and determined in thought; through this process, individuals decide if they have the skills, knowledge, and the ability to achieve. Self-persuasion can provide high or low self-satisfaction as a determinant for creating incentives for success or failure and convert thoughts and emotions to actions. Black female technology leaders can use this skill to increase their self-efficacy awareness (Cox, 2014).

Statement of the Problem

Previous researchers have examined specific contributing factors affecting the leadership self-efficacy of Black females. In these studies, Black female leaders described problems with discriminatory practices, toxic masculinity, and nonacceptance in the work environment (Harvey, 2007; Johnson & Thomas, 2012).

Women are significantly absent in executive leadership and management positions now more than ever (Kelly, 1998; Kim, 2016; Johnson, 2012; Offerman, 2018). Women comprise

approximately 34.4% of the workforce among global entities such as Amazon, Google, Facebook, Apple, and Microsoft, with women comprising just 26% of the computing workforce (Daley, 2021). As stated by Waring (2003), some believe that “gender might influence leadership” (p. 31). According to Boatwright, Egidio, and College (2003), “women now comprise 56.5% of the total United States workforce but hold only 5% of the top leadership positions in this country” (p. 654). In addition, the number of women in the U.S. workforce decreased 9% in 2020 amid the COVID-19 pandemic (Catalyst, 2021).

Women of color have minimal opportunities, especially Black women. Furthermore, Black women are faced with several alarming issues in the workforce, including disrespect in the workplace, personal safety, and lack of entry-level opportunities or promotion (Daley, 2021). A mere 1% of Black women are hired as computer hardware engineers (Ashcraft et al., 2016). The positions are available, but Black women are rarely chosen or invited to hold such powerful positions (Daley, 2021).

Black women experience emotional, mental, and financial hardships a direct effect from the lack of well-paying leadership opportunities. These effects additionally include (a) employers offering marginalized jobs that diminish their capacity to generate an above-living-wage income, (b) roadblocks to a higher educational journey, and (c) no time for self-care or healthy family engagement (Ashcraft et al., 2016; Daley, 2021; Johnson, 2012; Offermann, 2018). These effects can disintegrate Black women’s well-being. For example, Black women are consistently driven towards poverty due to disparities in income, White-male-only hiring practices, and disparities between male and female-owned and operated businesses (Portes, Atal, & Torres, 2019; Warner et al., 2018).

Moreover, this lack of opportunity is directly associated with depriving Black women of the operational and financial capacity required to be the head of their household, which many Black women are (Waring, 2003). Women who are the head of their household often have little help. These women are expected to work all day, take their children to and from school, do homework with their children, attend athletic activities their children engage in, and prepare all meals (Boatwright et al., 2003; Portes et al., 2019). Pearson and Bieschke (2001) emphasized that Black females' family experiences contribute to positive career advances and offered insight into how cultural family values play a role in career selection.

Black females both in leadership roles and in the general workforce will benefit from understanding the nuances of building self-efficacy and the degree of difficulty associated with facing leadership dynamics. This study focused on the lived experiences of Black female technology leaders. Based on the identified problems and their outcomes, the researcher shares strategies to address some difficulties in building self-efficacy among Black females. Future Black female leaders will benefit from this study.

The researcher specifically investigated Black female technology leaders employed in leadership roles who managed staff members at various technology organizations. It is important to note that these organizations that employed these leaders did not have an existing self-efficacy leadership program for Black female leaders or people of color. Black females must be represented in the workplace environment to develop self-efficacy. Furthermore, Black women must become power-players in various roles to exemplify beneficial responsible leadership modeling representation of Black females (Frye, 2017). Although some corporate entities have inclusion initiatives, no corporations have initiatives that focus on Black females' self-efficacy.

Self-efficacy plays an essential role in human lives and career choices, and strong self-efficacy requires foundational core awareness in self-confidence (Bandura, 1991c).

In this study, the researcher explored participants' awareness and experiences to discover their self-perception, and environmental condition perspective. This study describes beneficial practices for preparing Black females for leadership roles. These practices may create economic empowerment and expand career opportunities to allow existing and upcoming Black female leaders to achieve personal growth and gain long-term economic prosperity. Through learning about their self-efficacy, Black females could expand leadership roles and open doors for future leaders. The study results may also help organizations create mentorship opportunities to development Black female leaders of the future. Lastly, the researcher created an organizational leadership guide dedicated to instilling self-efficacy as a core practicum for current and future leaders.

Background and Need

Self-efficacy development is established by the individual. Self-efficacy is vital for building self-confidence and is considered a critical factor in building Black women's leadership power (Johnson, 2012; Portes et al., 2019). Catalyst (1999) stated that "many diversity programs are not as effective as they could be or were intended to be for women-of-color managers" (para. 3), which is a delimitation to building self-efficacy. Other female populations of color are experiencing advancements in pay, improved work environments, and career advancements, all of which increase self-efficacy; however, the forementioned opportunities are lacking for Black women (Catalyst, 2002). Lack of advancement, and higher income a "persistence of double standards and discrimination" has continued to decrease Black women's self-efficacy in the workplace, (Catalyst, 2002, p. 18). Bandura (1978b) stated, "psychological procedures, whatever

their form, alter the level and strength of self-efficacy” (p. 139). In this quote, Bandura addresses the daily battle for mental fortitude among Black women.

Ingamells, Napan, and Gasquoine (2013) explored how understanding one’s strengths and increasing one’s awareness allows for the expansion of career choices, which increases self-appreciation regarding personal and professional achievements. Duveskog and Sutinen (2013) investigated the connection between digital storytelling, self-success, and connecting self-responsibility through gathering participant self-opinions of their attitude and the self-judgement of their behavior. These two researchers used strategies to enrich their participants’ experiences for obtaining cultural relevancy through their lived experiences. The association between self-efficacy involvement and leadership achievement, prediction, and coping abilities varies across environment spectrums (Hoyt, 2005). These associations differ; thus, the elements that influence self-empowerment in a leadership role must be investigated. For example, Hoyt (2005) found that “those with low leadership efficacy were predicted to be vulnerable to confirming the stereotype resulting in decreased domain identification” (p. 5).

Researchers have investigated empirical ways of supporting Black female technology leaders’ existing self-efficacy (Hannah, Avolio, Luthans & Harms, 2008; Harvey, 2007). However, as Hannah et al. (2008) stated, “The concept of leader efficacy has received relatively little attention in the leadership literature” (p. 669). Marchiondo, Myers, and Kopelman (2015) established that leadership is socially relational, and hierarchical status is not enough for one to be recognized as a leader; rather, leadership is obtained by “leadership claiming” (p. 893). Marchiondo et al. further stated that the leader forthrightly or indirectly negotiates their leadership role behavior and traits to match their prototype. Although women are represented in leadership roles slightly more than in the past, they still face social barriers based on gender

(Kanadli, Torchia, & Gabaldon, 2016). Some common stereotypes projected upon all women include low competence, warmth and kindness, and not being authoritative and forceful decision-makers, with gender inequality obstructing workplace efficiency (Chang, 2020).

Roadblocks for science, technology and math (STEM) education persist based on gender, race, and background, forcing achievement gaps in high-level achievement (Cadenas, Cantu, Lynn, & Spence, 2019). Cadenas et al. (2019) posited that entrepreneurial and career opportunities are affected by disparities in tools that build self-belief. As of March 2020, Black women in the United States comprised 11% of the total number of women with undergraduate degrees and 11.5% of all women with business degrees, with the number decreasing from 2011 (Catalyst, 2020). Education has made little difference for Black women, who earn “62 cents for every dollar White, non-Hispanic men earned,” keeping Black women at or below poverty levels (Catalyst, 2020, para. 6). Furthermore, 18% of Black women constitute a significant majority of the lowest paid for a 40-hour workweek in U.S. workforce, with women of color comprising 46% of the U.S workforce in entirety. Women have increasingly obtained doctorate degrees in science, engineering, and technology, yet they are assigned roles that decrease potential career advancement and offered positions that require “institutional housekeeping” skills, causing an exodus of women from STEM (Isaac, Kaatz, Lee, & Carnes, 2012).

Self-influence supports one’s level of attainment through increasing the self-satisfaction and cognitive motivation required for designing leadership accomplishments (Bandura, 1991c). Abid et al. (2020) stated that “self-leadership is a self-influence perspective that pertains to one’s own ability to manage lead and control personal behaviors and come up with strategies to achieve desired goals for sustainable competitive advantages” (p. 299), whereas Napiersky and Woods (2018) suggested that organizational outcomes are based on leadership capabilities.

Napiersky and Woods posited that future researchers should determine the requirements for initiating the procedures to self-manage through self-control to examine other support methods that encourage developing self-regulation and self-efficacy activities to improve leaders' performance. Offermann (2018) and Johnson (2012) show an organizational scarcity of women's leadership at the top; unlike other female populations Black women there are not provided guides to leadership roles further reducing their opportunities. This study concentrates on strategies to develop and promote self-efficacy among Black female technology leaders.

Purpose of the Study

The purpose of this qualitative study was to analyze Black female technology leaders' lived experiences to reveal the self-efficacy conditions, effectiveness, and awareness required in participants' leadership roles. The researcher examined the past experiences of 10 Black female leaders, with a particular focus on how participants' life happenings determined their leadership pathway. This study included 10 Black female leaders who were managing five or more direct reports from various technology organizations in the United States. The study results provide insight into how to increase positive self-perception and self-efficacy awareness as a core culture for leadership success. This study also provides useful data on designing future self-efficacy initiatives, guidelines, and programs.

Theoretical Framework

The researcher selected Bandura's (1986) social cognitive theory of self-regulation as a guiding framework. The social cognitive theory of self-regulation provided the theoretical perspective through which to understand the self-efficacy awareness of Black female technology leaders. The theory has three major operationalized subfunctions: self-monitoring, judging one's behavior, and environmental circumstances. Bandura (1991c) further explained the subfunction

mechanisms of self-regulation as “self-monitoring of one's behavior, its determinants, and its effects; judgment of one's behavior in relation to personal standards and environmental circumstances; and affective self-reaction” (p. 248). Bandura (1991c) also posited that a core element of self-regulation is self-efficacy.

Self-regulation circumscribes self-efficacy, and the emotional, mental, and intellectual processes change the determinant and stamina of self-efficacy (Bandura, 1978c). As stated by Bandura (1999b), “In social cognitive theory, people are agentic operators in their life course not just onlooking host of internal mechanisms orchestrated by environmental events” (p. 4). Bandura's (1991c) social cognitive theory of self-regulation is a human act that encompasses multiple components—self-influence, self-motivation, self-observation, self-knowledge, self-evaluation, self-reaction, self-satisfaction, self-correction, self-awareness, self-management, self-doubt, self-perceptions, and self-schemas—each of which relates to one's personal effectiveness (see Figure 1).

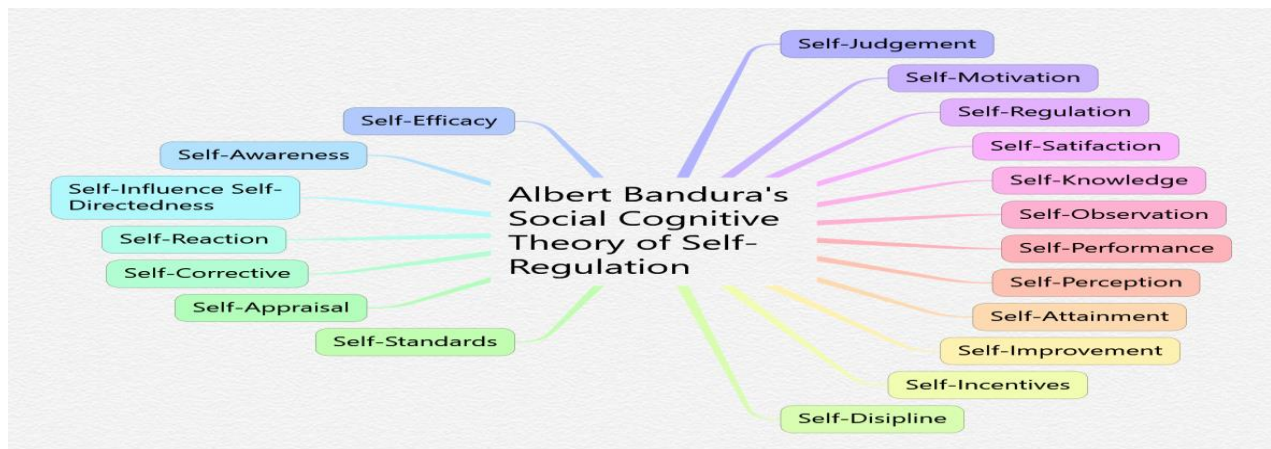


Fig. 1. Albert Bandura's social cognitive theory of self-regulation.

The cognitive strategy an element of the social cognitive theory is attributed to “learning from response consequences” to obtain advantageous results (Bandura, 1978b, p. 140). Self-

regulation and the self-directive process are aligned components of the social cognitive theory of self-regulation, as Bandura (1978b) describes as the learner's developed technique about how to achieve, creating a transformative experience when grasping information. In-depth thought analysis is required to undertake mental procurement (Allen, 1906), yet insight regarding the mental fortitude necessary for Black female technology leaders is lacking. This study's documentation reviewed important self-efficacy traits such as self-influences, self-reactions, behavior, and habitual thought (Bandura, 1991c).

This study presents stories of self-efficacy and self-knowledge through the lens of Black female technology leaders. Inner belief and inner strength contribute to constructing self-convictions (Ingamells et al., 2013); this study also discussed weakened self-efficacy, low motivation, and unreactive self-observation. Additionally, a goal of the study was that participating leaders be transparent regarding internal and external circumstances that present challenges and barriers. This study's findings provided suggestions and operational procedures for a social cognitive practice of self-efficacy among Black female technology leaders.

James Allen (1906) wrote, "You will fall, remain, or rise in your thoughts, your vision, your ideal" (p. 63). Self-efficacy allows the individual to discover themselves by building up self-knowledge; the more one believes in themselves, the more they want to know about themselves. The researcher probed the study participants' thoughts, insights, and experiences to discover participants' leadership actions and decision-making processes. Furthermore, understanding how these women can present a commanding performance while undergoing taxing environments—an admirable survival skill—is beneficial for furthering the self-efficacy needs of others.

Using Bandura's (1991c) three dimensions, the researcher developed interview questions, analyzed data, coded common themes, and interpreted the interview data. First, the researcher connected the core themes of self-efficacy to Black female technology leaders' everyday experiences of race and gender. As Evans-Winters and Esposito (2010) stated from the research by Carla O'Conner, "high achieving African American girls actually embrace a strong positive Black female identity" (p. 12), which is derived by a keen self-belief.

Second, the researcher connected this study to the theory by investigating racial bias, and the lack of advanced opportunities from social challenges that also affect self-efficacy to the core themes of the study. O'Conner (1997) noted:

Overall, the research affirms the extent to which renderings of how race, class, and gender affect social opportunity, and mobility are not only subjective expressions of group identities and affiliations but also inform dispositions toward the future and educational efforts. (p. 602)

This study extended prior research on the social cognitive theory of self-regulation to the self-efficacy of Black female technology leaders. This study also contributed to the body of knowledge on self-efficacy and thought approach—the strategy developed in one's thinking to help them achieve—by extending past research to the under researched population of Black female technology leaders.

Research Questions

The following research questions guided the inquiry of this study:

1. What experiences in the work environment have impacted the self-efficacy of Black female technology leaders?
 - a) What experiences have positively affected self-efficacy?

- b) What experiences have negatively affected self-efficacy?
2. What experiences with self-efficacy tools have Black female technology leaders found useful to address challenges in the work environment?
3. What recommendations do current Black female technology leaders have for aspiring Black female technology leaders?

Limitations

Study limitations are factors in the study that restrict how the data are gathered and analyzed (Bryant, 2004). The study was limited by clear conditions that were identified for this research investigation. The researcher identified three limitations in this study:

1. The first limitation was due to the time constraints. The researcher conducted individual interviews with 10 Black female leaders in technology for no more than 60 minutes over a period of 3 months.
2. The second limitation was the study's geographical and population confinement to the United States. The results may or may not be generally relevant to all regions of the United States.
3. After the data collection, the researcher did not enable participants to review and verify their interview recordings before the coding process because the audio was recorded in their own words, thus capturing participants' vocalized meaning.

Delimitations

Delimitations are factors in the study that limit its scope to prove the findings and the claim are always applicable, and in all places (Bryant, 2004). The researcher identified two delimitations regarding the range of this study:

1. The first delimitation of the study was the choice to confine the study data to the described experiences of Black female technology leaders.
2. Second, the study was restricted to a population size of 10 Black female technology leaders who have five or more direct reports.

Assumptions

Bryant (2004) described assumptions as to the premise about both the sample's soundness of the findings, and the credibility of findings gathered at a juncture in time. Assumptions in this study regarded behavior, honesty, and the intention of the participants and the researcher. Furthermore, "Many factors can impact the stability of one's findings" (Bryant, 2004, p. 56). In this study, the researcher made conclusions based on beliefs that were verifiable through participant experience. The researcher made several assumptions about the participants involved in this study:

1. It was assumed that the participants would respond honestly and transparently to the interview questions because they benefit from shared lived experiences and the recommendations made from the study.
2. It was assumed that the participants were speaking from their life and leadership experiences.
3. It was assumed that the time allotted to conduct the study was adequate to collect the data.

Educational Significance

As a basis for this study, the researcher identified three important rationales for why this study is significant. First, this study is crucial because it offered empirical significance. Researchers have found that "empirical research on ethnicity and IT careers paths is limited"

(Woszczyński, Myers, & Moody, 2020); thus, this study is important because it provides data on Black female technology leaders lived workplace experience. Last, this study is also essential because it expands upon existing research on Black females' self-efficacy.

The purpose of this qualitative study was to analyze Black female technology leaders' lived experiences to reveal the self-efficacy conditions, effectiveness, and awareness required in participants' leadership roles. Participants in this study helped uncover specific roles for future Black female technology leaders based on the research questions derived from self-efficacy.

The potential practical applications of this present study include developing a self-efficacy guide for Black female leaders in technology. In this study, the researcher investigated three specific sub-functions in Bandura's (1986) social cognitive theory of self-regulation: self-monitoring, judging one's behavior, and environmental circumstances. As discussed previously, self-regulation circumscribes self-efficacy, and one's emotional, mental, and intellectual processes change the determinant and stamina of self-efficacy (Bandura, 1978b). Bandura (1999b) argued that "Social cognitive theory subscribes to a model of emergent interactive agency. Persons are neither autonomous agents nor simply mechanical conveyors of animating environmental influences" (p. 4). Therefore, Black female technology leaders as an underrepresented population, along with the technology organizations that hire them now and, in the future, may offer various self-efficacy approaches that are crucial for these leaders.

Definitions of Terms

The following terms were operationalized for this study:

Self-awareness. Self-awareness refers to a person's in-the-moment ability to be conscious of their thoughts, emotions, feelings, body, words, and actions to apply the most appropriate step and decrease a reactive misstep (Nevarez, 2017).

Self-efficacy. Self-efficacy is a person's unifying belief and perceptions of what they can achieve based on the strength or lack of self-influences altering their ability to cope (Bandura, 1978b).

Self-influence self-directedness. Manz (1986) stated that "Self-influence system is the ultimate system control" (p. 586). Detailed attention must be fostered to achieve successful benefits of self-influence. Self-influence is a continuing process; individuals with more sources of self-influence make more of an effort to attain a goal (Bandura, 1991c).

Self-judgment. Self-judgment is "judgement of one's behavior in relation to personal standards and environmental circumstances" (Bandura, 1991c, p. 248).

Self-management. Self-management is a strategy where an individual uses secret self-dialogue to create the mental imagery before engaging in the intended activity (Ellis, 1962; Neck & Manz, 1996).

Self-motivation. Bandura (1978b) defined self-motivation as "motivation, which is primarily concerned with activation and persistence of behavior, is also partly rooted in cognitive activities" (p. 140). Motivation is developed through descriptive imaginative actions taken in thought, which influences the individual's future behavior and its consequences.

Self-perception. Self-perception is a determining factor in how much effort an individual will undertake and the perseverance they will dispense when confronted with challenges or disadvantageous encounters (Bandura, 1978b).

Self-regulation. Self-regulation has multiple operations, including self-monitoring, self-judgment, and effective reaction (Bandura, 1991b). Zimmerman (2002) explained that "self-regulation is not a mental ability or an academic performance skill; rather it is the self-directive process by which learners transform their mental abilities into academic skill" (p. 65).

Summary

This chapter has provided over an overview of the issues that have contributed to underrepresentation of African American female technology leaders in the United States. This chapter also discussed the theoretical standards established for the study. The theory selected was the most appropriate for obtaining direct insight from the participants.

Chapter 2 reviews the subject matter used in the researcher's analysis of the study data. Chapter 2 details the current perceptions of Black female leaders. Furthermore, the chapter reviews (a) the racial, emotional, mental, and pay discrimination faced by African American female leadership throughout history and (b) the interrelationship of self-efficacy, self-awareness, and motivational achievement or the lack thereof among Black female technology leaders. Chapter 2 also includes a discussion of gender bias, racial discrimination, and wage gaps that Black female leaders currently face in their work environment while presenting opportunities for transformational core culture changes that enhance self-management and self-influence directly associated with self-efficacy. This chapter illuminates the societal findings of previous researchers to support the current study.

Chapter 3 details the study methodology and framework, including the profile of the participants for the study. The chapter provides the investigation of the social cognitive theory of self-regulation focusing on the self-efficacy, and self-awareness of Black female technology leaders and the environmental factors underway.

Chapter 4 reveals the data analysis and emerging themes. This qualitative interview method allowed a more unstructured collection of data and opened avenues of study not initially identified in the question set. The information was solicited from current and well-established Black female technology leaders. Chapter 5 presents a discussion of findings

and conclusions of this study. This chapter also provides recommendations for future research and discusses actions that support Black female technology leaders based on the themes that emerged from this research.

CHAPTER II: REVIEW OF THE LITERATURE

Introduction

The purpose of this chapter is to acquaint the reader with background and theory underlying the study. Initial exploratory researchers, such as Albert Bandura, Barry Zimmerman, and Roy Baumeister, contributed to the basis of this study, along with researchers such as Steven Heine, Danielle Apugo, Emily Chang, and Ruha Benjamin.

This study data were used as a guide to engage and inform the need to remove unfair, biased practices in large technology corporations that hold hostage the hiring of Black female technology leaders. Such practices create ongoing barriers and economic disparities affecting self-efficacy in the Black female household and in the Black community. Bandura (1991c) argued that “People form beliefs about what they can do, they anticipate the likely consequences of prospective actions, they set goals for themselves, and they otherwise plan courses of action that are likely to produce desired outcomes” (p. 248). According to Ingamells et al. (2013), individuals who understand their own strengths can be more proactively engaged and aware of professional opportunities and improve and empower their livelihood. An individual can match leadership and opportunity with their strengths and vice versa. Individuals who are aware of their potential can mentally remove barriers to significantly improve their self-efficacy (Ingamells et al., 2013).

Overview of Literature Review

This literature review focused on six themes: (a) history of working women, (b) history of African American women in technology, (c) factors of leadership that demotivate hiring Black females, (d) barriers for Black females working in technology, (e) ways to promote self-efficacy and self-awareness, and (f) future leadership roles for Black females. It is vital to open pathways

of discussion regarding the ongoing workplace and economic disparities that women endure, especially Black women. Opening doors previously only available for White men will be transformative for Black female households and their communities.

History of Working Women

In World War II, White and Black working women replaced the workforce previously held by men who had gone to fight in the war (U.S. Department of Defense, 2019); this shift was represented by the image of Rosie the Riveter. Naomi Parker Fraley—one of the first cultural icons—set forth a shift in women’s work, which had previously limited them to working in the kitchen, the bathroom, or the manufacturing sewing assembly line (Pruitt, 2020). This represented the early stages of nondomestic work. Future entrepreneur—the researcher’s grandmother Allene L. Beasley included—were part of the forgotten and rarely mentioned 600,000 “Black Rosie’s” who participated in this iconic workforce (Randle, 2021). The researcher’s grandmother relocated from Gilmer, Texas to Richmond, California, where she worked at the Kaiser shipyard. The Kaiser shipyard operated seven ship-building locations selected on the West Coast during World War II due to the “availability of workers” (National Park Service, 2020, para. 6). This example provides a glimpse into how the many stories of Black females are shared in a familial setting.

During World War II, women were encouraged, sought after, and accepted as part of a hard-working class of patriots. These women were viewed positively and with popularity, with imagery of White women’s faces showing up on the cover of magazines, newspapers, and on posters, where they were deemed the “loyal supporters of the Boys” (Santana, 2016, para. 2). At its peak, 6,000,000 American females joined the workforce, leading the way for increased productivity, opportunity, and a wage increase with “nearly one out of every four married

women worked out of the home by 1945” (womenshistory.org, para. 3). These women earned 71 cents for every dollar a man earned. Unfortunately, the group status for these women swiftly evolved from empowerment to disempowerment, thus continuing the ongoing struggle for women to live and thrive in the United States, which is even more relevant for Black women and women of color.

Following World War II, many families “required a wife’s earnings to afford the lifestyle they desired” (pbs.org, 2021, para. 5); however, these women had no interest in entry-level positions such as factory worker, secretary, bookkeeper, or a department store clerk; rather, they were seeking only additional pay (pbs.org, 2021). A departure from nondomestic work becoming a corporate catalyst for family separation, with employers demanding that women separate home and work life to achieve what was deemed a man’s world and pay (pbs.org, 2021).

History of African American Working Women in Tech

Shellye Archambeau, an African American female CEO in tech, was the first Black female CEO in Silicon Valley. A former executive at two publicly held companies IBM and CMO, Shellye was recruited by the then afflicted start-up company MetricStream and went on to hold board seats at Verizon, Nordstrom, Roper Technologies, and other Fortune 500 entities. In her book *Unapologetically Ambitious, Take Risks, Break Barriers, and Create Success on Your Own Terms*, Shellye shares her 25-year journey, including her experiences meeting the demands of a wife, mother, and groundbreaking leader while overcoming racist and sexist barriers and challenges (Archambeau, 2020).

The most notable and recently recognized African American females in computer science are Mary Jackson, Katherine G. Johnson, and Dorothy Vaughan. Kathryn G. Johnson helped send the first man into space, coauthoring 26 scientific papers. These three Black female

mathematicians worked at NASA in 1961 but received limited notoriety for their near impossible feats; this changed when the movie *Hidden Figures* was released on January 6, 2017. Before John Glenn went into outer space in 1962, he requested that Kathryn double check the math, stating, “if she states the computer is right then I’ll take it” (NASA.gov). Mary Jackson became NASA’s first Black female engineer. All three women lived in the Jim Crow South. Although these women moved beyond segregated bathrooms, and dining areas, they never received pay equivalent to their White male peers. Rather, Black females’ pay was calculated “by the color of their skin” so that “coloreds weren’t paid enough to afford pearls” (Leeds, 2017, para. 7). The following literature review reveals that very little change has taken place regarding the devaluation of a women’s worth and income levels. Across the United States, 21.4 million women live in poverty. The U.S. Black female population has the second highest poverty level at 22% (Bleiweis et al., 2020).

Factors of Leadership that Demotivate Hiring Black Females

Black females have been coerced into low-ranking, underpaid positions since the days after slavery, with women throughout history expected to take on the mass majority of caregiver roles (Borland & Bruening, 2010). High proportions of Black females have a higher educational level than their coworkers and are very aware of this fact (Hall, Everett, & Hamilton-Mason, 2012); still, Black women often do not receive promotions at work. Hall et al. (2012) posited that learning about the culture of Black females must come from more than token hiring; one individual cannot provide insight for the entire race. *Lean In* (2020) argued that “When a Black woman succeeds, people often attribute her accomplishments to factors outside of her control—such as affirmative action, help from others, or random chance” (p. 7). Black women work

harder and get paid less; “if employers want to do better by women, they must do better by Black women” (Lean In, 2020, p. 35).

The Catalyst (2021) indicated that upward career leadership opportunities at the corporate-level were low among Black women. The surveyed Black females sought to be an influential leader (87%), to work toward a high-ranking position (81%), and are inclined to remain in the same organization (88%). Many Black women who face exclusionary workplace practices tend to remain in the organization; this affects Black women’s sleep time and work performance and creates “psychological safety” thought patterns (Catalyst, 2019, para. 5).

Inclusion of women in the workplace promotes team development and higher productivity (Daley, 2021). Women increase the return on invested capital; however, this fact is often ignored when considering hiring new staff as leadership members. This issue is vast for women of color, with women of color comprising just 3% of boardroom members in the most successful American corporations (Catalyst, 2015). Although women work in almost equal numbers in the nonprofit arena, women of color still have limitations as boardroom members. This matter affects Asian, Hawaiian, Indian, Native American, Black, and Hispanic women (American Association of University Women [AAUW], 2016).

Barriers for Black Females Working in Technology

Although women purchase the technology, they are shut out of crucial roles to design and build it. In the working world—including tech companies—women have different lower pay roles than their male counterparts (AAUW, 2016; Ahuja, 2002; Chang, 2019; Benjamin, 2019; Maitland, 2001; Shuttleworth, 1992). Black women earn 37 cents more than they did in 1998, but still do not earn as much as White men (Catalyst, 2002). “The Anti-Black Box” and “secret algorithms” (Benjamin, 2019, p. 34) are used to exclude Black people from opportunities, thus

sustaining social and economic disparities while maintaining White supremacy “to keep people separate and unequal” (Benjamin, 2020, p. 91). The environmental condition here perpetuates the ongoing barriers that Black females face working in technology. Woszczyński et al. (2020) argued that “These populations must not continue to be underrepresented and/or underutilized” (p. 64); rather, in the IT pipeline, women’s roles must be emphasized.

It is perceived and predetermined that women must place family first over career motivations, higher education, and economic achievements. As Ahuja (2002) stated, “As women are influenced by both educational and industry, structural factors begin to play larger roles in their careers” (p. 23). This outcome is reversed for men, who have options beyond gender bias (Lemons & Parzinger, 2007). Women of color are placed in the sea of sameness, set aside, and often seen in a negative light. Common racialized terms associated with Black women is that they are “aggressive, ill tempered, illogical, overbearing, hostile, and ignorant without provocation” (Ashley, 2014, p. 27); thus, many Black people experience and recognize their achievements, knowledge, and technical skills are not accredited to them and or properly acknowledged, hidden from view and not of value, therefore creating an atmosphere and reality of diminishing career advancements. Fordham (1993) found that Black girls are typically referred to as “loud, aggressive, and masculine,” which is used as reasoning to leave Black girls out of favorable circumstances (Fordham, as cited in Evans-Winters & Esposito, 2010, p. 12). Young White females are perceived as sweet and innocent, whereas the same aged Black girl receives the reverse deliberation and is thought to be unrighteously worldly (Greene, 2017). Black girls are commonly subject to adult racialized partiality as early as age 12 (Simons, 2019). At the dawn of enslavement, a Black woman was defined as a “mule” to do all the work the “Whiteness” and cleanliness of White women were not meant to do (Fordham, 1993, p. 14); in

other words, Black females were reserved for “sex, dirt, housework and badness” (Fordham, 1993, p. 14). The angry Black woman stereotype has undeservingly plagued this population and diminished their leadership appointments.

Due to a lack of leadership roles and opportunities, women’s experiences in the technology workplace have many feeling that their only option is to leave the field (Ashcraft et al., 2016). As O’Connor (1997) stated:

Overall the research affirms the extent to which renderings of how race, class, and gender affect social opportunity and mobility are not only subjective expressions of group identities and affiliations but also inform dispositions towards the future and educational efforts. (p. 602)

No prior studies have directly examined lack of leadership roles and opportunities or gender-based self-efficacy from the perspective of Black female technology leaders. Bandura (2007) added that “moral self-sanctions can be disengaged or blunted by depersonalizing people or stripping them of human qualities” (p. 30). Ashley (2014) study states “mythology presumes all Black women to be irate, irrational, hostile, and negative despite the circumstance” proactively stripping this populations ability to take defensive action in a hostile environment (p. 28).

Depersonalization challenges discourages leaders from working willingly beyond leadership inequities, thus undermining long-time goals and success.

Black females currently at executive level leadership positions have effectively set up goals that accomplish visibility, recognition, credibility that comes with a lucrative income, which has allowed them the benefits of sustaining a high-profile status. Not an easy task in an unwelcoming environment. However, far too many more Black women, incessantly lack adequate opportunities and career advancements that promote self-efficacy, self-awareness, self-

directedness, and self-empowerment, which contribute to self and career achievement. Without such elements that drive self-belief a failure to perform such plans follows suit. As Heine (2008) wrote:

Becoming a successful leader and a mentor in the professional world seems to require two main skills, one internal and the other external. The internal skill is the ability to make decisions that are elevated from hackneyed, rut-making approaches-instead, being nimble and responsive to the conflict or the complexity at hand. The external skill is a matter of polishing powerful and persuasive communication methods that facilitate rather than hinder collegial interpersonal relations. (pp. 132–133)

Individuals are compared to one another in most environments, whether by race, skill, knowledge, income, or community (Sevilla, 2010). Unfortunately, the situation too often is a daily negative encounter for Black females. Through these practices of causing individuals to diminish belief in oneself, some are therefore denied the opportunity to reach their full potential; self-belief and an inner-winning method are intertwined (Sevilla, 2010). The inner-winner strategy prevents the individual from becoming derailed when negative internalized and or external circumstances and factors arrive, instead, they dig deeper into self-assuredness. The inner-winner does not and cannot come alive, thrive, and or exist without self-belief and vice-versa. The second problem identified as a basis for the study is how opportunities or the lack of leadership opportunities influence self-efficacy.

Leadership studies continue to reveal disparities between men and women, which have a pronounced effect on Black female leaders. For example, Hackett and Betz (1981) gathered data from the U.S. Women's Bureau and found that, "women, in comparison to men, are largely

concentrated in a small number of low-paying, low-status occupations which present few opportunities for advancement” (p. 327). Furthermore, opportunities can improve self-efficacy performance. Black females suffer from lower pay and racial preferences no matter the industry, which impacts Black women’s ability to build self-efficacy (Frye, 2019). Research from American Association of University Women (2016), Catalyst (2021), Chang (2019), and Daley (2021) have revealed significant disparities between opportunity and growth in income between White men and women and even more so for people of color, which is momentarily detrimental for Black females in the same field.

Black Americans’ struggle to gain access to affordable capital, housing, education, upwardly mobile jobs, and careers affects both economic empowerment and leadership success. Too many Black female heads of households are restricted to their own neighborhood and local community due to the economic limitations imposed upon them (Clark, 2018). Being the head of the household has forced many Black females to put everyone else’s needs first, keeping themselves in a fixed continuous survivor mode (Sevilla, 2010). As Pearson and Bieschke (2001) added, “African American women make meaning of the influence of their family origin experiences on their career development” (p. 302). Family genesis is a variable to the individual building and sustaining a positive and strengthened self-efficacy.

Substantial hurdles have been placed in and around underserved, marginalized communities for hundreds of years, creating a herd-like struggle for self-identity and self-efficacy (Sevilla, 2010). Not enough compassion and care is given to underserved, marginalized communities. These communities suffer from limited self-importance from oppressive methods and actions enforcing their current conditions (Sevilla, 2010). Black female leaders are often the one “token” representation of the population in their work environment; the higher they achieve,

the less likely they are to see another Black female in the workspace (Cheeks, 2018). Moreover, Cheeks (2018) stated that some of the Black females fellow workplace associates are automatically determining that these women are representative of a Black person's climb up, and out of poverty, and that they have experiences with being of low wealth. This leads to the propagation for the furthering of undeservedness, and unworthiness of Black females as well as the Black population.

In the opening statement of the 2016 study by the American Association of University Women, the authors write, "Women are much less likely than men to be considered leaders" (p. 1). Managing people to address gender disparities is standard practice; however, organizations fail to recognize that women can build relationships and professional pipelines (Carboni, Cross, Page, & Parker, 2020). Carboni et al. (2020) studied gender diversity and found four characteristics that women bring to the workplace: (a) they prevail over the imposter syndrome, (b) women work effectively building teams and relationships without taking on too much, (c) women have constructive listening skills to recognize and enhance their strengths and others, and (d) women smoothly flow through relationship barriers building more empowering connections. Carboni et al. further stated that women work to remove barriers that block creativity in the workplace, and that "successful women were most likely to identify other successful women as energizing, especially when the overall percentage of women in their organization was low" (p. 4).

The perception that women are not leadership material creates opportunity roadblocks; this matter is a more significant issue for Black females who consistently run into culturally uninformed and misinformed individuals along with microaggressions based on race and skin color (Apugo, 2020). Microaggressions refer to processes of discriminatory practices, such as the

Shirley Card used by Kodak photography as a coded skin color guide to determine who is “White enough” (Benjamin, 2019). For example, women who are not middle-class or White are omitted from conversations that may open doors for Black women, Asian women, transgender women, Latina women, and disabled women (Chang, 2019). From as far back as 1964 to as recently as March 2020, the U.S. Equal Employment Opportunity Commission lists numerous federal and private discrimination lawsuits based on race and color. Corporate America, universities, and various organizations have bias issues with women of color regardless of their educational success (Mainah & Perkins, 2015).

Ways to Promote Self-Efficacy and Self-Awareness

Black females encompass a minuscule percentage of those designing and building technology. Black women never see an increase of representation in the work environment, which hinders self-efficacy (Benjamin, 2019; Boisrond, 2017; Lawson, 2018). Skin tone and womanliness is the root of the lack of technology leadership roles offered to Black females; therefore, self-efficacy is crucial (Ashcraft et al., 2016; Daley, 2021; Lemons & Parzinger, 2007). Having a positive ethnic identity is associated with positive self-efficacy (Blash & Unger, 1995; Collins & Lightsey, 2001). Another consideration for building self-efficacy is removal of gender bias (Fordham, 1993). In addition, matching skills with tasks reveal one’s talents and elevates achievement empowers resiliency and improves self-efficacy (Stajkovic, Bandura, Locke, Lee, & Sergent, 2018). Black females do not have many mentorship opportunities in the workspace environment, despite research that indicates that mentorship is associated with building confidence, workplace retention, and increased self-efficacy (Elliott, Isaacs, & Chugani, 2010).

Distinguishable attainment becomes feasible through self-efficacy (Hassan & Bakri, 2016; Shapero & Sokol, 1982). Improving the experience, thoughts, feelings, and actions within an environment can empower one's self-efficacy and enhance an individual's self-influence (Bandura, 1986; Elliot et al., 2010). Individuals who have a strategy to target the desired and anticipated outcome are often more successful. Such strategies are regulated by self-monitoring, where one measures the consequence to achieve. Black females must adapt regularly, consistently change their positioning, and significantly increase performance to sustain employment, an underlying concern for self-efficacy (Bandura, 1991c) Benjamin, 2019; Stajkovic et al., 2017). Additionally, many Black females have to guard against being labeled as the 'angry Black woman,' an offensive, commonly used terminology to keep opportunities for this population at a distance. This offensive terminology affects behavior, self-confidence, self-esteem, and self-judgment. Bandura (1991c) explained these factors as self-reactive, self-judgmental, and self-monitoring stances that influence the individual's conduct providing insight to "their actions in terms of personal standards or social standards of behavior" (p. 253).

Black females must continuously gauge the continually changing emotional atmosphere of their workspace (Li, Eschenauer, & Persaud, 2018). An individual's perception of their environment as positive, negative, safe, or fearful influences their self-efficacy. Self-efficacy is reinforced through the involvement of peers, friends, and family support (Shen, Qiang, Wang, & Chen, 2020). In the workplace and beyond, an individual's mental barriers, both perceived and real, can be overcome by empowered self-efficacy. Self-efficacy helps individuals build confidence to succeed in dealing with an issue at hand (Li et al., 2020). Additionally, perceived and purposely inflicted social isolation can hinder the mindset and block performance, a consequence particularly relevant among women of color (Asilar et al., 2020). In a

technologically advanced world, it is reported that women pay with their bodies; women are invited to “sex parties” but bypassed in the boardroom (Chang, 2019, p. 179). In addition, Black female bodies are highly degraded and sexualized in the media and elsewhere. Limited opportunity, limited income, and immense bias amount to limitations of self-efficacy.

Future Leadership Roles for Black Females

The purpose of this study was to identify effective ways for developing and supporting self-efficacy among existing and future Black female technology leaders. Bandura (1991c) stated that “people form beliefs about what they can do; they anticipate the likely consequence of prospective actions; they set the goals for themselves” (p. 248). The more significant and complicated the task, the higher the need is for self-efficacy (Bandura, 1978a, 1978b, 1991b, 1991c; Heslin & Kleche, 2006). Various leadership research studies focus on the relationship between self-efficacy, self-worth, self-awareness and cognition (Lin & Hsu, 2015). Bandura argued that “The capacity to exercise self-influence by personal challenge and evaluative reaction to one’s own attainments provides a major cognitive mechanism of motivation and self-directedness” (p. 260). Similarly, Tong et al. (2018) associated some of the benefits of Tai Chi to be positive self-efficacy, stating “high-level self-efficacy has positive effects on mental health and quality of life” (p. 1). Collins and Lightsey (2001) further asserted that “Self-efficacy expectancies may be more likely to reflect African Americans awareness of their relatively low-power position within American society” (p. 276). Self-efficacy awareness is challenging to ascertain without relevant leadership connectedness, association, and mirroring models (Apudo, 2020).

It is crucial to understand that Black female mentorship is not a high corporate priority; many Black females have inadequate managerial development opportunities (Catalyst, 1998).

Moreover, “The number of women versus men in IT managerial positions is also unbalanced” (Lemons & Parzinger, 2007, p. 91). The Catalyst (1998) study provided a voice to Black females’ experiences; study participants indicated that corporate diversity programs do not address racial microaggressions in the workplace. Such nonaction disempowers self-efficacy awareness. Deborah Gillis, President and CEO of Catalyst, stated that “We’ll never achieve a truly inclusive workplace as long as women of color continue to face obstacles to leadership... These data suggest that women of color are least likely to benefit from corporate diversity programs” (para. 4). Results of a Catalyst (2015) study revealed that Black women comprise .2% of all leaders in U.S Standard & Poor’s 500 Index of publicly traded companies.

Social Cognitive Theory of Self-Regulation

Ingamells et al. (2013) highlighted the need to allow individuals find connectedness strengthening their uniqueness by creating a personalized practice that meets and expands their desire for self-information that is “more conducive to learning than focusing upon deficits”, empowering their personal and professional lives (p. 73). In the tech world, few Black females showcase idiosyncratic strengths, for fear of not being promoted into leadership roles. Sevilla’s (2010) comparative study provided insight from Nikolai Berdyaev, the Russian Christian philosopher, and Watsuji Tetsuro, the Japanese Buddhist philosopher and intellectual historian. Both thinkers focused profoundly on the importance of self-fidelity, self-expression, the correlation between the need to be faithful to one’s distinctiveness, and the internal and external conflict of “what it means to be human” (p. 225). The importance of self-construction should be presented from very different and varying vantage points to showcase the necessity of understanding the differences and commonalities of self-efficacy. Knowledge is power, and a

direct way of blocking the mental, emotional, and financial pathway is by limiting access to gain understanding (Clark, 2018).

Cognition is a predictor of outcome delivery in leadership decision making; currently, Black female leaders are underrepresented in tech, which can harm self-identity, self-esteem, and self-confidence. Bandura (1991c) explained that social cognitive “self-regulatory systems lie at the very heart of casual processes. They not only mediate the effects of most external influences but provide the very basis for purposeful action” (p. 248). The social cognitive theory of self-regulation encompasses the self-regulation model, which encompasses one’s ability to control their behavior, feelings, and thoughts, as well as the learner’s beliefs about their teaching capabilities (Perry & Steck, 2015). Although influential Black female leaders in the workplace are available, they are rarely selected to showcase modeling these positive attributes.

The starting point of self-regulation theory is the performance phase, a crucial element for a leader’s effectiveness. This theory encompasses the research of Barry Zimmerman, who related self-efficacy to learning, along with Roy Baumeister, who focused on self-efficacy to self and self-perception, and Albert Bandura’s association of self-efficacy to self-influence to promote goal achievement (Dziak, 2019). Individuals who understand his or her own thinking, self-readiness, and self-awareness can manage his or her limitations and achievements (Zimmerman, 2002). Temporal proximity, as Bandura (1986) explained, is the ability to monitor and evaluate one’s maladaptive behavior to self-directed adaptive control, a segment of developing self-efficacy (as cited in Bandura, 1991c; Kazdin, 1974; Nelson, 1977).

Bandura’s (1991c) social-cognitive theory of self-regulation supplies a practical framework for understanding the various aspects of self-efficacy that affect leadership and

performance objectives. The strengths of the social-cognitive theory of self-regulation are as follows:

- Thoughts are directly correlated to individual outcome theory encompasses motivation.
- The theory's self-judgment component affects behavior, a driver for building self-efficacy.
- Self-monitoring or self-observation empowers and expands self-awareness to create self-understanding.
- Improvement of self-efficacy and self-knowledge is required and improves with ongoing development.
- Positive habitual thought patterns are crucial for positive self-regulation.
- Self-corrective actions require a self-analysis and personal scrutiny.
- When one fulfills personal standards, self-approval and self-satisfaction build up self-influence (Bandura, 1986, 1991c).

As pointed out by Ahuja (2002), "If a woman finds a way to overcome barriers that may have stopped her from choosing an I.T. career, she may still find that these factors continue to hamper her persistence" (p. 20). Black female technology leaders can be further empowered through awareness, understanding, and engagement with self-efficacy. As Bandura (1978b) stated:

Motivation, which is primarily concerned with activation and persistence of behavior, is also partly rooted in cognitive activities. The capacity to represent future consequences in thought provides one cognitively based source of motivation, through cognitive

representation of future outcomes, individuals can generate current motivators of behavior. (p. 140)

Through awareness of cognitive activities, Black women can experience empowered, transformative outcomes.

Gaps in Prior Research

This literature review identified one significant gap in prior research and literature review Black women's self-efficacy in the tech environment: an evident population gap Miles (2017) described as "research regarding the population that is not adequately represented or under-represented in the evidence base or prior research" (p. 4). Ashcraft et al. (2016), Benjamin (2019), Chang (2019), and Warner et al. (2018) pinpointed a need for further investigation into the contribution of women, specifically how the self-efficacy awareness of Black female technology leaders correlates to achievement. With technology, "you have more power at your finger-tips than entire generations that came before you" (Benjamin, 2019, p. 27). Yet, Black women experience stagnation when it comes to leadership opportunities. Salesforce CEO Marc Benioff stated that "Every CEO needs to be focused on equality" (as cited in Chang, 2019, p. 284). Benioff presents a nice sentiment, but little action has been taken to address inequalities in the workplace.

Black female technology leaders' self-efficacy can be measured through assessing these leaders' influence of opinions, self-awareness of opinions, and self-leadership of those they oversee and manage. The social cognitive theory of self-regulation, as discussed in Lin and Hsu (2015), is critical in identifying how Black female technology leaders view their leadership self-efficacy ability as a result of using either or all of the involvement categories. These involvement categories include the following:

- Environmental influences: the importance the individual places on their environment, the activities, and protection within their environment
- Personal self-concepts: regulation of the individual's behavior to monitor self-sanctions encompass self-efficacy, self-esteem, self-monitoring, self-perception, and self-preference" (Bandura, 1986, 2003, 2004).
- Outcome expectations: an individual's expectation of his or her actions (Bandura, 1997; Compeau, 1995).
- Behavior: Bandura (1992, 1982, 1986, 2006, 2008) created the social cognitive theory to examine human behavior. According to Lin and Hsu (2015), self-regulation is guided by two elements: "social sanction and internalized self-sanction" (p. 327) and the self-resistance the individual has in engaging in injurious behavior and social sanction.

Individuals who encounter limitations in their environment often have constraints regarding their personal, emotional, and financial development (Clark, 2018). Clark (2018) further stated that a lack of resources creates a predictable outcome for many Black females, their families, and the community. Black women's working environment often reflects rote conditions and does not promote higher schema development, once again highlighting an organizational structure attempting to limit opportunity development among Black women. Additionally, individuals in underserved, marginalized communities are not taught to focus on their strengths (Ingamells et al., 2013). Understanding one's strengths can help individuals be more proactively engaged and aware of professional opportunities and helps improve and empower livelihood. The technological field presents various opportunities and significant barriers for Black females (Perry & Steck, 2015). Perry and Steck's (2015) research highlighted

how Black women face everyday factors that attempt to control their outcomes, achievement levels, and success.

The gaps identified by Ashcraft et al. (2016), Benjamin (2019), Chang (2019), and Warner et al. (2018) further confirm the need for this study. Each researcher pinpointed a necessity for continued investigation into contributions women make in the technology field. The current study focused on the self-efficacy awareness of Black female technology leaders and the correlation between self-efficacy and achievement. Environmental factors must be addressed to remove barriers that affect the self-empowerment of Black women (Perry & Steck, 2015); therefore, more inquiry was required to examine the lived experiences of Black female technology leaders.

Summary

This study filled the gap in the literature regarding Black female technology leaders' self-efficacy. This current study findings provide more evidence on Black female technology leaders' performance and self-efficacy. Moreover, the study contributes to the literature in this field through adding the experiences of Black female technology leaders to a list of elements affecting leadership performance. This researcher aimed to (a) add value to the development of Black female technology leaders' leadership models, (b) improve or add value to different leadership objectives, and (c) eventually improve future Black female technology leaders' performance.

CHAPTER III: METHODOLOGY

Restatement of the Purpose

The purpose of this qualitative study was to investigate and uncover how Black female technology leaders describe the self-efficacy conditions, effectiveness, and awareness required in technology by analyzing their lived experiences. This study had two primary objectives. The first objective was to examine 10 Black female technology leaders' past experiences in their living environment, with a focus on how their authentic, individualized process determined their leadership pathway. The second objective was to examine these women's recent experiences in technology, particularly their experiences within the work environment.

Previous leadership studies focused on origins and conception as an essential determinant of leadership effectiveness (Waring, 2003). Some of these studies indicated that female leaders display more logical reasoning and inclusive behavior, thus empowering their followers to achieve goals. Researchers such as Neck and Manz (1996) established a relationship between self-efficacy and cognition, whereas Waring (2003) explained that "much of the research on leadership has ignored how the personal histories of people may influence their conceptions of leadership" (p. 42). Although each leadership style possesses its soundness and standards, it is up to the leader to authenticate and apply the most effective leadership self-efficacy. A leader's self-efficacy must adjust to a balanced, pragmatic state for self-mastery (Heslin & Klehe, 2006); therefore, a qualitative design was appropriate to investigate Black female technology leaders' experiences with self-efficacy awareness.

Research Design

The research methodology for this study was qualitative, using interviews as the process. According to Hamilton and Finley (2019), "qualitative methods commonly include individual

and focus interviews. Traditionally, qualitative methods have been used across a variety of disciplines to describe how things are” (p. 1). The study’s qualitative methods were based on a small sample (10), which was not large enough for a quantitative methodology; therefore, a qualitative methodology was adequate for discovering the insight of representative sampling for this study.

More importantly, a qualitative methodology allowed the participants to describe their leadership self-efficacy experiences through interviews. The selection of an appropriate methodology is determined by the phenomenon the researcher is trying to investigate (Silverman, 2013). Furthermore, the qualitative methodology provides “a rigorous learning experience” (Mitchell et al., 2020, p. 1). A qualitative research method allowed the researcher to connect with the participants and see the world from their vantage point with the use of various tools. Afzal and Afzal (2019) further discussed qualitative research methods:

A qualitative research method consists of systematic observations, interviews, case studies, surveys, background studies, and historical document analysis to find a social behavior pattern(s), certain attainment gap(s), and/ or relevant issues that match with the objective of the study. (p. 229)

The qualitative research methodology was appropriate for the current study because it allowed the researcher to ascertain the participants’ perceptions. The interview was guided by organized questions designed to capture the Black female technology leaders’ specific experiences. The research questions were the tool used to glean insights from the subjects in the study. Mantzoukas (2008) argued that,

for qualitative studies, the research question acquires even greater significance since the notions of audit trail, which commences from the research question, is considered as an

indication of a valid or not research. Hence, the formation of a qualitative research question requires it to be based on a framework as to have specific content, coherence, and structure. (p. 371)

Mantzoukas' assertion confirms that a qualitative method was the right choice for this study.

Mantzoukas further added that a qualitative research method allows the researcher to be more focused on the naturalistic view of the phenomena: "the questionnaires are environment-specific and try to address the issues at hand as accurately as possible with rich description and adequate information" (p. 371). Contradictory to qualitative methodology, quantitative methods emphasize measurable data and variables (Jelsma & Clow, 2005), which was not this research's goal. The Department of Health, Education, and Welfare (1979) added, "Because the subject's ability to understand is a function of intelligence, rationality, maturity, and language, it is necessary to adapt the presentation of the information to the subject's capacities" (para. 29). Therefore, a qualitative design was the best research design for this study because it allowed the researcher to examine the self-efficacy awareness phenomena based on the participant's understanding.

A qualitative research design is about recording people's experiences through stories. In the current study, the researcher used interviews to understand Black female technology leaders' self-efficacy awareness. Medeiros (2014) described "personal narratives as frameworks through which the speaker/teller selects, sequences, and, 'tells' events to some listener, such as an interviewer, a reader, or one's self" (p. 51).

Lastly, this study used a qualitative methodology because it gave a better look at human undertakings. Jelsma and Clow (2005) argued that "Qualitative researchers are more interested in the specific person/s, place, or time and are less concerned with how generalizable or transferable the results of the research may be. Qualitative research acknowledges the strength of

subjectivity” (p. 3). In other words, qualitative research leads to the investigation and understanding of the world from the perspectives of those experiencing or living it (Tarihi & Tahri, 2019). Tarihi and Tahri (2019) explained that researchers conducting qualitative research must set aside their opinions and stay objective while recording the participants’ views and perceptions. The current study used a qualitative research design to understand Black females’ perceptions of their leadership and self-efficacy awareness practices.

The use of qualitative methodology in this study seemed appropriate because, as Hanson, Balmer, and Giardino (2011) mentioned, a qualitative approach helps the researcher to capture and convey personal meaning and experiences from participants about a phenomenon. A qualitative approach was chosen for the current study because this approach provided deeper insights into the impact of Black female technology leaders’ self-efficacy awareness.

Researchers use the qualitative research design to better understand other people’s meanings and perspectives (Creswell, 2013). Through this study, the researcher allowed the Black female technology leaders to share their detailed experiences about their self-efficacy awareness. Furthermore, Mele and Belardinelli (2019) stated, “studies employed this design consistent with the rationales identified by the methodological literature” (p. 340). Limited research, if any, has focused on the self-efficacy awareness of Black female technology leaders; thus, the current study investigated this research topic using data from interviews.

Research Setting

This study’s research setting offered virtual contact with Black female technology leaders in the United States, some from California, which is home to over 2000 tech companies. Multiple headquarters are located in a dense population of conglomerates in the northern part of California, including Google, Facebook, Apple, Oracle, Intel, Cisco, Adobe, Broadcom, and

eBay. These entities also include newly growing companies such as Machine Zone, Fanatics, Illumio, GRAIL, BlueVine, Zoot, and ThoughtSpot.

The virtual face-to-face interviews allowed the researcher to capture the lived experiences of Black female technology leaders. To provide better insights into participants' experiences of the phenomena, the researcher used interviews to obtain as much information as possible. The leaders interviewed are currently working remotely. In-person, face-to-face meetings were not an option due to COVID-19 health guidelines.

In past studies, some participants were “not technologically experienced and may not be used to checking links and messages delivered electronically” (Marques et al., 2020, para. 11). The participants for this study had expert knowledge of technology; therefore, lack of technological experience was not an issue for this study. Data for this study were collected using open-ended questions to understand the 10 Black female technology leaders' views and impressions. The researcher maintained participants' confidentiality throughout this qualitative research.

Because the research took place virtually, the researcher undertook a purposeful sampling procedure for each participant to accomplish this study's goal. The participants were provided a private secure session; however, the participants self-selected a location and environmental setting that they felt comfortable with for the online interview. Surrounding factors and human biases may have affected the study; however, the researcher did not eliminate subjectivity. Schindler, Schindler, Kiszko, Abrams, Islam, and Elbel (2012) noted that study participants can be influenced by their environment and individual experiences. The current study pursued measures to limit outside impacts.

Participant's responses were secured through Zoom video recording, which increased the study's validity. A first rationale for the use of Zoom was associated with the attempt to ensure more robust outcomes through correlation of the methodology, interview review, and transcription review that would deliver results without error for validity, confirming "the importance of triangulation from multiple methods as a validity check" (Freeman & Peck, 2007, p. 925). Interview transcripts were processed using NVivo qualitative analysis software for data management, structuring, and analysis (Rich & Patashnick, 2002).

Population and Sample

This study population was comprised of Black female technology leaders located and employed at technology entities in the United States. These individuals had more than 5 years of experience in the tech industry managing more than 5 direct reports (individuals who directly report to them). Ashcraft et al. (2016) revealed that the percentage of jobs available to Black females in this arena range from the low of 2% to the high of 10%. The percentages of jobs available for Black females in each category are as follows: computer information systems managers (2%), computer systems analyst (5%), information security analysts (3%), computer hardware engineers (1%), computer programmers (2%), software developers (1%), web developers (4%), computer support specialist (4%), database administrator (2%), network and computer systems administrators (2%), computer network architects (4%), and operations research analysts (10%). Black females who hold positions listed by the U.S. Bureau of Labor Statistics have a starting range of \$48,670 with 10% earning wages of \$140,790 and a median income at \$84,810. As *Business Insider* reported, an individual's income level must be above \$100,000 to live comfortably and above the living wage in California, a base for many of the global technology giants (Knueven, 2019). Knueven's findings reveal that most Black females

working in the tech industry in California do not have enough income, positioned to live in a continuous state of lack.

This study uncovered the emotional and economic lived experience of these Black female technology leaders. The accessibility, small population, and geographical selection played a significant role in obtaining research data on Black female technology. It was of great importance to this researcher to address the needs of this underrepresented population.

Instrumentation

This study used one single instrument: the participants' interview. The study data were collected using open-ended questions to understand the 10 Black female technology leaders' views and perceptions. During this qualitative research study, the researcher maintained the confidentiality of the participants within the interview and interview notes. Because the research and interview questions asked some profoundly personal insights, the dialogue began with benign innocuous questions. The following interview questions guided the interview inquiry of this study's participants:

1. Describe your overall experiences as a Black in the technology work environment?
 - a) What have been your greatest successes?
 - b) What have been your greatest obstacles?
2. Describe the specific strategies and/or tools you have used to navigate challenges in the work environment?
3. Describe the specific strategies you use to control your emotions to be your most effective and productive in the technology work environment?
4. What are the top five beliefs you have about yourself that keep you mentally strong and self-empowered?

5. What are the top five thoughts that influence how you think about yourself?
6. Describe your behavior in the work environment that creates achievement?
7. Describe your behavior when you feel you are approachable?
8. Whom have you relied on for support or mentorship in the workplace? Describe those relationships? Describe the strategy you used to find mentorship?
9. What recommendations can you offer to aspiring Black female technology leaders, based upon your experiences?
10. What are the top five action steps for an aspiring Black female technology leader to implement your recommendations?

A validation panel comprised of two distinguished and highly regarded university professors confirmed the interview questions' validity and reliability. The first professor holds the titles of Ph.D., M.C.P., R.B.A., C.M.A., and M.B.C. and is a 15-time winner of the Best of Research Award for Applied Statistics in Economics and Marketing at the Advances in Business Research Conference. This professor has also been featured on numerous nationally syndicated media outlets. The second professor holds the titles of Ph.D., M.S., and B.S. This professor was also recognized as an emeritus professor through her scholarly work focusing on educational gender inequalities and disparities of women's representation in higher education. Her approach at a major university as both a professor and a department chair engaged students in a social justice framework, transforming the student's thoughts regarding leadership. Each of the validation panel members were invited to view the interview questions to ensure the questions addressed and aligned with this study's purpose. Both panel members scored the questions using the provided Question Scoring Key Attachment 3.

Data Collection

Data were collected from January–March 2021 through virtual interviews with approved questions. Before conducting the study, the interview questions (see Appendix A) underwent a review approval from the University of San Francisco Institutional Review Board (IRB). Upon approval by the University of San Francisco IRB, the researcher distributed the approved introductory letter to the study participants. The letter explained the study purpose according to the IRB protocol (see Appendix B).

Participants were recruited through coordinated e-mail and social media communications and were then screened for eligibility to participate in the study based on the previously discussed demographic requirements. Over the course of 3 months of data accumulation, 30 prospective participants expressed initial interest in the study topic and the future objectives. One participant agreed to be screened immediately and participated in the interview 2 days later. The second participant had a demanding schedule, and the initial meeting date was rescheduled for 2 weeks later. The third individual who agreed to be a participant would not respond to the e-mails to schedule the interview date; after four attempts to reach them, this individual was removed from the participant list. The fourth and fifth prospective participants were interested in the study but would not sign the participant agreement due to fear of exposure and were removed from the list of qualified participants. The next five female participants made themselves readily available and participated in the required interviews. There was an enormous amount of back-and-forth communication between the researcher and the following group of 21 prospective participants. These individuals provided varying responses that included (a) my time is short, (b) I have too much on my plate, I am not sure, (c) sounds interesting I will get back to you, and (d) I will see what I can do. These responses required the researcher to send multiple requests per week within

the 2-month period to obtain the required 10 participants. Each participant received the prospective participant letter and signed the consent to participate in a research study form. Additionally, participants were provided with the informed consent form (see Appendix D), which they reviewed and signed to authorize their participation. The informed consent also included information on the researcher, such as e-mail and phone number, should the participants have any concerns or questions about the study.

After the participants accepted the invitation to be included in the study, the researcher provided the participants with alternative dates and times for data to be collected; this discussion occurred virtually and through e-mail. Participants were also sent reminders to confirm the interview date and time. During the interview, the participants were reminded of the study's purpose, their voluntary participation, and the assurance of confidentiality of their identity. The interview began with demographic questions to access the participant's background without disclosing any identifiable personal or organizational markers. By use of codes, the participant form indicated the anonymity and confidentiality of the participants.

The researcher assigned a code to each participant and was given a pseudonym. The interviews were directed using open-ended questions to allow the participants to be objective in their answers. A meaningful, purposive sampling was representative of this study's data collection process. The researcher investigated the phenomenon by examining what contributes to the understanding and meaning of the self-efficacy awareness occurrence. Lukacik, Bourdage, and Roulin (2020) argued that "Asynchronous video interviews (A.V.I.s) are a form of one-way, technology-mediated, selection interviewing that continues to grow in popularity" (p. 1). This guided interview process was used with this study's participants. The participants received all

information about their right to either participate or withdraw from the interview. The researcher also ensured that no financial, or material costs were applied to participants' decisions.

To ensure participants' privacy, the participants selected a private and secure environment where they remained while the interview was conducted. As previously mentioned, due to current health guidelines regarding COVID-19, all conversations were conducted over Zoom. Marques et al. (2020) posited that virtual data collection is both necessary and challenging due to COVID-19 social distancing requirements; some individuals do not have the technological experience and have difficulty locating links to access the interviewers' portal. Marques et al. further stated that "participants who were not technologically literate required extra attention from our research coordinators, often needing additional phone calls and reminders" (para. 10). Fortunately, the participants for the current study had an excellent aptitude and knowledge of using technology.

The interview sessions took between 45–60 minutes, including time allotted for follow-up interviews in the case of extenuating circumstances or if the need arose for additional clarity from the participant. As Deakin and Wakefield (2013) stated, "participants using video conferencing enjoy the flexibility and convenience of participating online" (as cited in Gray, Wong-Wylie, Rempel, & Cook, 2020, p. 1293); this researcher found this assertion to be true for the current study. Similarly, Gray et al. (2020) stated that "while in-person interviews were the mainstay of data generation in qualitative studies, video conferencing programs, such as Zoom Video Communications Inc. (Zoom), provide researchers with a cost-effective and convenient alternative to in-person interviews" (p. 1292). The researcher did not need to use a tape recorder to ensure an accurate collection of the participants' responses because the Zoom system captured the required audio. The researcher also planned to use pen and paper when needed to document

the interview process further but realized during the initial interview that Zoom eliminated the need to take notes. The research questions focused on “what” or “how” questions to lead participants through an examination of their awareness of self-efficacy as a Black female technology leader. Each interview was recorded and then downloaded to a secure computer. Sayrs (1998) restated the qualitative interviewer process of Steinar Kvale, who argued that the interviewer must dig deep as if mining for gold when listening to the participants account as well as partake in their journey and experiences in developing the new story. The researcher for the current study captured essential and meaningful details through Zoom online recordings (Cabaroglu, Basaran, & Roberts, 2010; Deakin & Wakefield, 2013). In addition, participants felt more freedom to be self-expressive (Gray et al., 2020).

Aforementioned, the researcher used NVivo a comprehensive search and code analysis capability when using structure-less text, video, and audio during interviews to analyze, organize, and manage the recordings from the participant interviews (Rich & Patashnick, 2002). The researcher coded the interviews, “an almost universal process in qualitative research” that must become an inherently learned procedure (Elliott, 2018, p. 2850). The coding process identified themes and related words. Stuckey (2015) posited that “Coding is a process used in the analysis of qualitative research, which takes time and creativity” (p. 7). The audio recordings captured the participants words in their own voice; therefore, there was no need to have the participants review their transcripts for accuracy before the researcher analyzed the data. It is an easy technological transition from computer to NVivo (Basit, 2003).

Confidentiality was also a critical factor in this study. Each study participant was given an assumed name or a pseudonym to ensure their privacy. According to the University of San Francisco IRB guidelines, information referencing the participants in the study was collected to

ensure that all participants were protected from any harm. It was also critical for the researcher to keep the data confidential and secured in a location known only by the researcher. After three years, the data can be destroyed if it is no longer needed.

The researcher treated all participants with respect and is grateful for the participants willingly provided their free time to participate in the study. The researcher ensured that none of the participants could be matched to the answers provided. The researcher also ensured that none of the participants' names or the names of the organizations that employ them were disclosed in the study. Each participant received a pseudonym representative of traditional, meaningful, and powerful African birth naming practices. No personal information about the participants was or will be made public. Again, the researcher's responsibility was to ensure and maintain participant anonymity and confidentiality with their participation in this study.

Ethical Considerations

The researcher exercised respect for participants by sharing the study's purpose and getting informed consent before collecting data. The study participants were from various technology entities from across the United States and were participating to share insight of their personal experience and not the organization itself; therefore, no organization needed to approve the research before it took place. I sent a letter to all potential participants to invite them to participate in the study and provided a consent form that included an explanation of the study's purpose and benefits and the participants' role and time commitment. When studying human participants, the researcher needs to consider ethical practices, uphold safeguards, and take "stock of ethical issues" (Thompson, Stringfellow, Maclean, & Nazzal, 2019, p. 6). The researcher's additional ethical concern was to advise participants that all information would be secured and not shared with anyone outside the researcher's dissertation committee.

This study's researcher used the four fundamental ethical principles for investigative research: (a) respect for autonomy, (b) beneficence, (c) nonmaleficence, and (d) justice, to include a "professional code of ethics" (Jahn, 2011, p. 225). Bitter, Ngabirano, Simon, and Taylor (2020) stated that ethics in research is a sensitive topic for researchers; however, "respect for persons requires that research subjects freely participate in research after informed consent" (p. 2). The first step in this process was to receive approval from the IRB at the University of San Francisco to conduct research with human subjects. The University of San Francisco IRB reviewed the research project description to ensure that all research was conducted ethically using federal regulations for participants' protection. The researcher acknowledged all requirements set by the University of San Francisco and all procedures required through the doctoral process; therefore, it was essential and even critical that the researcher adhered to all the rules established through the University of San Francisco following IRB requirements. Consequently, it would have been unethical for the researcher to collect any data without first getting the University of San Francisco IRB approval letter, which was received on January 25, 2021.

Brakewood and Poldrack (2013) asserted that "balancing risk and benefits and selecting subjects appropriately" (p. 673) are core ethical principles. The researcher outlined a potential participant schedule with interview timelines prior to IRB reviewers' approval. The IRB received all appropriate forms that were submitted to the participants before the study took place, per the research guidelines and regulations for approval. The IRB also required that participants receive a letter of consent explaining the research and its purpose for their understanding. Appendix B contains a prospective participant written letter approved by the University of San Francisco IRB. Each participant selected to participate in this research signed an informed consent form

(see Appendix D) to document her permission to participate in this study willingly. Furthermore, the research design must demonstrate awareness of qualities that make a successful qualitative researcher, such as incorporating ethical boundaries surrounding human subject' interactions (Newman & Kaloupek, 2009). As Fowler (2014) explained, to protect respondents, the researcher must ensure that "all people who have access to the data or a role in the data collection should commit in writing confidentiality" (p. 143). Thus, the researcher informed each participant that the data collected in this study would remain strictly confidential and specified that coding would be used to protect participants' identity. The participants were also aware of the study's content, such as its purpose, its benefits, and any risks that could be associated with the research study. The researcher also disclosed to participants that the study's information could be used to develop a plan to expand awareness of current and future Black female technology leaders' self-efficacy needs. The researcher created a trusting relationship with the participants.

Data Analysis

The question coding process grouped the respondents' responses to provide insight into the research topic and evaluate emerging themes and patterns analyzed for further research. This researcher separately coded and compiled details from each participant and inspected and categorized the information to review the details for credibility and follow-up questions. The coding process allowed the researcher to ensure and remove interviewer bias.

During the next phase of the study, the researcher delineated the interview data in a visual format to display themes and summarize the results effectively. Each of the themes identified captured and illuminated the insight of the participants and highlighted key elements of the findings.

This qualitative design helped the researcher capture participants' experiences. The researcher collected data using the demographic and open-ended interview questions. The researcher e-mailed the interview questions to participants before the interview date. In analyzing the data from participants, the participant then became the primary instrument for data collection and analysis. Rich and Patashnick (2002) explained that participants' "primary mandate is to tell their life stories in their own ways, to show their lives as they live them" (p. 248). In a qualitative study, the participants' views are valuable and useful. The Zoom interviews allowed the researcher to gain more in-depth insights into the participants' beliefs or perceptions of the phenomenon under study (Angrosino, 2007).

Data preparation included collecting data and then transcribing interviews. McLellan, MacQueen, and Neidig (2003) argued that "Although there is no universal transcription format that would be adequate for all qualitative data collection approaches, settings, or theoretical frameworks, some practical considerations can help researchers prepare transcripts (Mishler 1986:49; Mergenthaler & Stinson 1992; Kvale 1996:167; Drisko, 1998:7)" (p. 64). McLellan et al. continued:

If an analysis focuses on providing an in-depth description of the knowledge, attitudes, values, beliefs, or experiences of an individual, or group of individuals, a greater number and possibly lengthier units of text need to be included in the transcript. (p. 67)

As a guide to structuring the data collection and analysis, Moser and Korstjens (2018) recommended that researchers have a broadly defined data collection plan and determine sampling strategies that align with the research methodology. Moser and Korstjens further stated that the "data saturation determines sample size and is different for each study" (p. 9). Moser and Korstjens explained that qualitative researchers need a comprehensive plan to capture data in

various settings and work with different participants. Moser and Korstjens also argued that working with different participants is beneficial for establishing a research design. The researcher also used a content analysis process to investigate various patterns or themes developed and processed within the data collection. Krippendorff (2004) further noted that “a content analysis must predict or infer phenomena” (p. 10).

During the interview process and its transcription, the researcher ensured the data’s integrity while avoiding partiality. This study captured the imaginative words of the participants using data triangulation. As Fusch, Fusch, and Ness (2018) explained, “triangulation adds depth to the data that are collected” (p. 19). This stage of listening and observation allowed the researcher to emphasize the body language and expression of the participants. After completing the study, it is the researcher’s responsibility to destroy the tapes after 3 years.

Validity and Reliability

Two Black females’ non-participants of this study in the field of technology provided feedback beneficial to the research focus and topic. Important to the research, these two women provided an assessment regarding the interview questions’ untested appropriateness during a pilot test run. Agee (2009) identified that the purpose of a high-quality research question is to understand the individuals’ perceptions by asking contemplative, reflective questions. The selected interview questions helped the pretesters understand and validate the research interview focus. The pretest participants did not participate in the study; rather, they strictly reviewed the interview questions to ensure question clarity, otherwise known as field testing. The interview pretest was conducted to test the accuracy, validity, reliability, consistency, timeliness, relevance, completeness, and comprehensiveness of the interview questions.

Researcher's Background

The researcher is a business leader who has received appointments at a local, statewide, regional, and federal level by the Schwarzenegger Administration to the California Bureau of Private Post-Secondary Education Advisory Board, the Obama Administration to the U.S. Environmental Protection Agency Environmental Finance Advisory Board, and was later reappointed by the Trump Administration. As a loan committee member for Nor-Cal Financial Development Corporation, one of seven California certified financial development corporations, the researcher supports California's small business goals. She has been responsible for successfully securing over \$500,000,000 for small-business lending and has assisted more than 3,500 small businesses with capital access.

The researcher is an accomplished speaker, author, consultant, thought leader, founder, and expert in her field of knowledge, with more than 23 years of success across finance, education, energy, sustainability, nonprofit development, and construction management. Leveraging extensive leadership development expertise, personal-power development, education, and business mentoring, the researcher is a valuable asset to companies looking for core culture development, turnaround, governance, and performance.

The researcher's fields of expertise include professional and personal development; entrepreneurship; emotional intelligence; differential instruction teacher-training for student engagement and motivation; financial literacy and financial education; smart money management; business strategy; human resources and people development; business and leadership coaching; business and marketing plans; environmental industry; community and economic development; affordable housing; restructure, transition, succession; innovation; strategic alliances; and organizational development.

As a writer, the researcher is one of the 100 coauthors of the Amazon bestselling leadership book *1Habit*™, *100 of the Happiest People on the Planet* (2019) and is the Amazon bestselling author of the book *50 Tips for Increasing Your Personal-Power*™ (2019). Additionally, she contributed to the academic book *Ethical Decision Making: Cases in Leadership and Organization* (2019) by Dr. Patricia Mitchell. In her executive career, the researcher has held leadership positions at BMB Construction Properties, served as the Chief Thought Officer at Wait a Green Minute, and founded the tax-exempt organization Terra Green CDC, a U.S. Department of Agriculture certified Rural Communities Microloan Assistance program (RMAP) provider.

In addition to her leadership roles, the researcher is the principal mental-fortitude executive leadership coach at the business that holds her name. She has worked with corporate executives, non-profit leaders, and government officials at a statewide, regional, national, and global level, including Pacific Gas & Electric, Google, Salesforce, Square, Slack, and various governmental organizations. She created a curriculum for the University of California Berkeley Extension, where she taught her coaching leadership subject matter as a proof of concept. Her desire to tackle this research topic comes from her belief that all experiences contain self-empowerment elements. One's actions are based upon how one thinks about the experience, tied to the importance of aligning one's words, thoughts, and actions for a preconceived outcome: increased personal power.

CHAPTER IV

FINDINGS

Overview

The purpose of this study was to explore the personal experience and insight of 10 Black female technology leaders in the United States who had direct reports [direct reports is a term used in the field of technology when individuals report directly to a designated leader] from five or more employees at an executive leadership level. A qualitative approach was selected because it is deemed by many previous researchers ideal for collecting data that explores an individual's life exposure and happenings. The data collection and examination were executed and accomplished, as discussed in the previous chapter.

This chapter presents the data collected during the qualitative interviews, showcasing exploratory fact-finding experimental evidence experienced by the study participants: Black female leaders in the field of technology. This chapter presents the results of the study, which investigated the self-efficacy awareness of Black female technology leaders. The findings section starts with a description and analysis of the dialog transcribed from each participant's interview. At the beginning of each account, the researcher provided a profile of the participant. The researcher removed identification markers due to the low percentage of Black females in technology; identification markers included their job title followed by any specific professional achievements that offered a more complete portrait of the individual's identity. Involvement with self-efficacy awareness outside their technology workplace setting was also given. Next, descriptions of the connections the participant made between environmental circumstances, self-monitoring, and judging one's behavior were documented. After this, the researcher furnished further description of the participant's responses that were relevant to the three guiding research

questions central to the study objective. Correlations were made between the wording of the questions and the participant's discussion provided in response to the questions. Then, analysis based on the entirety of the responses provided was examined with NVivo. At this phase, the discussion was analyzed and Albert Bandura's social cognitive theory of self-regulation, the theoretical framework for the study, was applied.

Successive to the initial phase of the investigation for each participant, the researcher of this current study proceeded through participants' discussion pertaining to the 10 interview questions formulated from the three guiding research questions for the study. The researcher organized participants' experiences to exhibit the commonalities, shared encounters, and individual insights amongst those central to illuminating the happenings of Black female technology leaders. The primary analysis was executed using the three subfunctions from the social cognitive theory of self-regulation.

Participant Demographics

This study included 10 Black female participants in an open-ended interview process using Zoom to capture only the audio communication between January 2021 and March 2021. Due to a low number of the population demographics for this study, traceable markers such as role in organization, exact age, targeted geographic location, and organization structure are not shared. The researcher amassed demographic data from 10 Black female technology leader participants as indicated in Table 1.

The study participants were placed into two age brackets: 35–45 years of age and 45–60 years of age. Seven of the participants were from the 35–45 age range and three were from the 45–60 age range. Nine of the participants' highest level of education was a master's degree with one participant having a doctorate degree. Eight of the participants had obtained additional

certifications in various aspects of technology and/or engineering; six of these participants were from the 35–45 aged group and two were from the 45–60 age group.

Table 1

Participant Demographic Breakdown

	Age	Highest Academic Level		Additional certifications
35–45 years	7	Graduate degree	9	6
45–60 years	3	Doctorate degree	1	2

Participant Profiles

Roles that were listed as quantifiable from previous research that was available and accessible to Black females in technology included computer and information system manager, computer systems analyst, information security analyst, computer hardware engineer, computer programmer, software developer, web developers, computer support specialist, database administrator, network and computer systems administrator, computer network architect, and operations research analyst (Ashcraft et al., 2016). The same study had no quantifiable data on Black females for the top ranking and highest paid role of computer and information research scientist.

Each of the 10 participants had a unique set of high-profile qualifications. All of them taught in some aspect and had a range of diverse educational backgrounds and pathways into technology. Seven of these Black females have various national leadership board appointments that extend beyond technology to the realms of education, community development, inclusion, and diversity. All 10 are speakers and presenters at state and national conferences. Six of them travel beyond the U.S. borders to showcase their ideas and concepts at global conferences. One

of the participants has high-level governmental security clearance. Participants did not disclose their pay-scale.

Participant eligibility requirements included (a) identifying as a Black female, (b) worked in the field of technology not less than 5 years, (c) manages over others with direct reports, and (d) would willingly and transparently provide their perspective of being a Black female leader in the field of technology. Eight of the participants in this study birth forenames are rooted from traditional American names. Two of the participants' birth forenames are derived from a non-American origin. Due to the personal and confidential sharing of their insight and experiences for this study's purpose, participants are referenced by names they may have received during a traditional, and cultural African ceremonial birth naming, which defines the child's mission, and provides a reflection of their life purpose (originsinfo.com.au, 2017). For full confidentiality and removal of identifiable markers the participants received consequential pseudonyms, and the name meaning are as follows: Sonequa- queen or king; Akilah- intelligent and logical; Imani- faith; Cedrica- a battle chieftain; Fatema- captivating; Hanita- divine grace; Rhianna- great queen; Zari- golden; Sheniqua- God is gracious; and Hippolyta- queen of the tribe of Amazons in Greek mythology (names.org, 2021; momjunction.com, 2020; greekmythology.com, 2021).

Zoom allows for an audio capture; thus, the researcher was able to listen intently to the responses and determine the participants level of discomfort as the questions were presented from their voice tone, pauses, cracks in the voice, sounds of frustration, irritation, doubt, and instances of fear. The audio also allowed for hearing emotions of relief, joy, power, authority, purpose, enthusiasm, compassion, and hope. The participants spoken words are transcribed.

Sonequa's Experience Summary

Sonequa is 35 to 45 years of age. She has worked 16 years in the field of technology with 7 years of direct reports in her field of knowledge. She loves the creativity of the work but found the work environment experience challenging. Her highest academic level is master's degree, and she has obtained numerous certifications in her field of knowledge.

Akilah's Experience Summary

Akilah is 45–60 years of age. She has several direct reports and has had a career in tech for over 25 years. She has been employed at several global technology organizations during her career. She showcased strong confidence through her words and body language. Akilah came across as very self-assured even when sharing instances that she stated were extremely uncomfortable. Her highest academic level is master's degree, and she has additional certifications in her field of technology.

Imani's Experience Summary

Imani is 35–45 years of age. She has worked in the field of technology for 9 years with 3 years of direct reports in her field of knowledge. Throughout her career, she had found it necessary to appear confident in moments of unsureness so that she maintains her wellbeing in the “White male toxic environment.” Her highest academic level is doctorate degree, and she is considered an expert in her field of knowledge. She also has several certifications in her field of expertise.

Cedrica's Experience Summary

Cedrica is 35–45 years of age and has worked in the field of technology for 8 years with 4 years of experience with direct reports in her field of knowledge. She is highly regarded and

sought after for her expertise and has been asked to sit on many boards. She has only accepted a few invitations because her time demands at work do not support having external engagements. Her external goals outside of her employment role supports upward career mobility efforts for Black females' economic empowerment. Her highest academic level is master's degree, and she has obtained numerous certifications in her field of knowledge.

Fatema's Experience Summary

Fatema is 35–45 years of age. She has worked in her field of expertise for 15 years with 6 years of experience with direct reports in her field of knowledge. Throughout her career, she has seen very few women of color and has worked with only one other African American female. Many of the women she has worked with in her field of expertise are from India and are nonnative U.S. citizens. Her highest academic level is master's degree, and she has obtained numerous certifications in her field of knowledge.

Hanita's Experience Summary

Hanita is 35–45 years of age. She has worked 11 years in the field of technology and receives more than 24 direct reports. She has prolonged workdays and works well beyond the 8-hour work period to complete her daily tasks. Although she enjoys opportunities for advancement in her field, where she is currently employed seems bleak. Previous fellow Black females have moved on to other organizations and have seen success by doing so. She is considering doing the same. Her highest education level is master's degree, and she is contemplating going back to school to obtain a Ph.D. to potentially increase her income and career advancement. Additionally, she has several certifications of distinction in her field of expertise and wants more.

Rhianna's Experience Summary

Rhianna is 45–60 years of age. Her highest education level is master's degree. She has additional certifications in her field of technology and other fields that support and align with her expert knowledge. She uses her expanded knowledge as leverage in the workplace because she feels her work product may not get noticed otherwise.

Zari's Experience Summary

Zari is 35 to 45 years of age. She has worked in tech since graduating college and has one of the highest-ranking positions in her field of knowledge at her company of employment. Although she is in a leadership position, she feels she does not speak up enough regarding racial and gender bias for fear of retaliation. She has a master's degree and has obtained additional certifications in her field of technological expertise.

Sheniqua's Experience Summary

Sheniqua is 45–60 years of age. Her highest academic level is master's degree. She has more than 27 years of expertise in her field of knowledge. She has seen and experienced many changes in the workplace environment, with few of them beneficial to women of color. She feels very secure and confident in her work due to her status in her field and at her place of employment. Although she does not have Black female associates at her workplace, she has fellow female colleagues who she has become friends with that are supportive of her and her role as a leader. She does not have additional certifications in her field of technology.

Hippolyta's Experience Summary

Hippolyta is 35–45 years of age. She worked through college at a tech company integrating and implementing theory and practice through her studies, which allowed her to be seen and known as a “go to.” This experience was self-inspiring and exhausting at the same time;

she feels she is only perceived approachable when giving up her time and knowledge for some who do not offer her the same when the opportunity is presented, but her practice in the workplace is a necessity for success as a Black female in the tech environment. She has earned a master's degree in her field of expertise. She does not have additional certifications in her field of knowledge.

Responses to Research Questions

The research questions established for this qualitative study guided the interview questions that were developed through an intensive aggregative systematic review of prior research to obtain the insight from relevant participant knowledge and expertise. The 10 interview questions and subquestions were designed using Albert Bandura's three subfunctions from the social cognitive theory of self-regulation: environmental circumstances, self-monitoring, and judging one's behavior. This study was grounded in three research questions that explored the lived experiences of 10 Black female technology leaders. The cycle of self-efficacy awareness is illustrated in Figure 2.

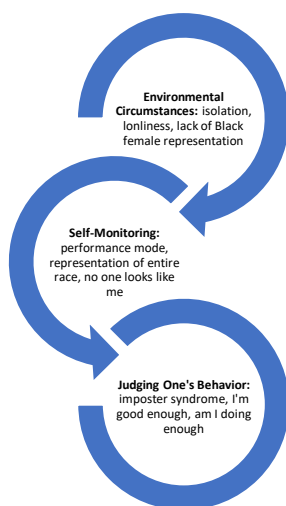


Fig. 2. Albert Bandura's social cognitive theory of self-regulation three subfunctions.

Participants were provided a 5-minute introduction before 35–45-minute Zoom interview began. During this time, the participant was provided a pseudonym. The Zoom VTT file, a text file saved in the Web video text used for the data collection, recorded 262.29 minutes of interview audio. The VTT file was imported to NVivo for examination of the data, which resulted in capturing various themes that highlight participants' experience, and awareness such as (a) the lack of mentorship, (b) the need to educate others about us, (c) Black Lives Matter, (d) I have done a lot, (e) I do not acknowledge that I am tired enough, (f) am I doing enough, (g) just get my name right, and (h) the imposter syndrome. The five primary themes are shown in Figure 2 to exhibit the participants' self-efficacy, self-influence, self-monitoring, and self-regulation found in this research. These five primary themes that were injected into the conversation by the participant have a following numbered indicator reflecting the total of times the subject matter was presented by one of the participants. The themes are as followed; isolation (32); they think I am representation for my entire race (26); have to look outside the organization to find fellow Black female colleagues in my field for support (24); identify trusted leaders (24); and lack of representation in tech (20).

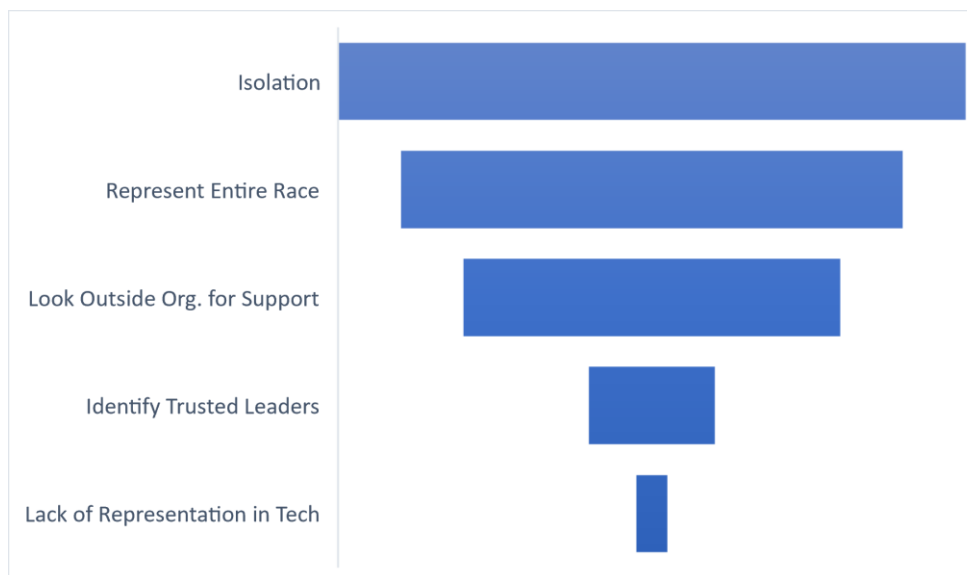


Fig. 3. Primary themes.

Figure 2 presents the primary themes found during the research. Each participant dealt with degrees of isolation; this topic was brought up 32 times during the recorded interview sessions. The next theme reoccurred 26 times, with participants stating over and over again that they were pinpointed to be representation for and of the entire Black population. The next theme was mentioned 24 times and revolved around the necessity to look outside of the workplace environment for beneficial mental and emotional support being a Black female in tech. The fourth theme, which was also mentioned 24 times, highlighted the strategies and benefits to connecting to regarded trustworthy leaders. The fifth and final primary theme was touched upon 20 times and addressed the lack of Black female representation in tech within and across all spectrums of the industry, especially at the executive leadership level.

Research Questions 1 Findings

What experiences in the work environment have impacted the self-efficacy of Black female technology leaders?

- c) What experiences have positively affected self-efficacy?
- d) What experiences have negatively affected self-efficacy?

The experiences in the work environment that impacted the participants' self-efficacy had many commonalities. Each participant was transparent about their experiences and openly shared them during the interview. The following sections present some of the research highlights from the interviewee's perspective; these highlights are shared as direct quotes.

Question 1 research findings were discovered through a three-pronged question, where participants were asked to describe their experiences, their greatest successes, and their greatest obstacles as a Black female in the technology work environment. *Sonequa* described the work environment as,

Lonely many times deflating... when you walk into a space many times you never see anyone who looks like you, and from a social perspective it can be a little hard to get over that...maybe they don't have the same shared experiences as us, they're not coming into to this the way that I'm looking at it, from a professional standpoint it is even harder it shows there is no career progression for people who look like you, so when you see these all team meetings the executive staff speaking are all White men it can be really disheartening to know that no one like you has made it through the ranks to get here, and it makes you reevaluate why you are at that company or what your purpose is at the company.

Sonequa focused on the need to have images that reflect a shared identity in the workplace and sought to create that environment for Black students visiting her workplace environment; this appeared to have left a positive cognitive meaningful impression on her, which improved her wellbeing and outlook. *Akilah* described the work environment as,

I mentioned earlier when you're on your team it can feel very lonely, you don't see anyone...so being able to have a community to fall back on and say this is how my day was going is just something that is really important...One finds a place to speak up and having people listen to me whether it is speaking to upper management about what maybe needs to be changed or discussed...I think they listen to you because they have to because they have to have a meeting with the direct reports but they are not going to do anything with it.

Akilah found regularly mental and emotional hardship and reasoned why she should stay at the company that employed her, seeking answers for herself and for the future opportunities of others. *Imani* described the work environment as,

The lack of representation and leadership lead me to believe there was no way that I would be promoted into these roles that I wanted to be in...maybe the intent was good but the execution was not, so many of the things they would do where they tried to have a space where Black folk were to chat about their experiences but that got hijacked by a number of non-Black employees it ended up with us explaining why we're feeling this way, and why it was happening etc....they would push initiatives like support Black owned businesses but it seemed to be

more for optics...so it made us think were we just a PR stunt...feeling like you are used like a prop for diversity purposes.

Imani loved being in a creative environment, but in many instances found it to be suffocating and frustrating. She felt limited, constricted, and conflicted and yearned to take a stand for something positive most of the time in her work environment. *Cedrica* described the work environment as,

My overall experiences as a Black female in technology...I'm the only Black female on the that leadership team, as a leader of the company... that experience is not my first time being the only Black woman on our leadership teams...what is unique is that there are few Black females as a whole department team that experience can often feel limiting, it can often feel that you 100% represent the entirety of being a Black person...that can feel at times burdensome...it can also come with an opportunity to educate what it's like to be the only person of color the only Black female on a team.

Cedrica illuminated power within her voice even when discussing the challenges of experiencing immense isolation within in an environment where no one resembled her or could relate to her personal and life experiences as a Black female. *Fatema* described the work environment as,

I have to be more intentional about raising women as a visibility as a concern and an opportunity gap...understanding where there is a lack of...the greatest successes within the tech environment is bringing individuals along and educating individuals around the importance of developing a belonging for individuals from all cultural backgrounds...in my role I am able to influence as a woman of color

identifying as a Black person inside a tech company, my role comes with those set of advantages...the importance of representation across different backgrounds and experiences, advantages.

Fatema highly valued improving and empowering the visibility of Black females as well as all females in tech. She found it a personal responsibility to ensure the action is undertaken to support rather than hinder Black females. She recognized that her role in her tech organization and beyond its doors allowed her to create successful opportunities for other Black females who she had seen become disempowered or diminished in their mental and emotional wellbeing. *Hanita* described the work environment as,

There is not a Black female within the company as an engineer in a leadership capacity inside the organization. The greatest obstacles within the tech environment are the notion that a large percentage of the workforce are engineers, none of them representing Black females.

Hanita shared insight that was reported in previous research: that Black females were predominately employed in domestic positions rather than positions of power, authority, and leadership. In tech, just 1% of Black females hold the higher paid position of computer hardware engineer (Ashcraft et al., 2016). *Rhianna* described the work environment as,

You have to consider all backgrounds, all experiences...not everyone had to come from the tech industry...helping others to know that there is a pathway for those with a non-traditional background and there is a pathway for those with non-traditional schooling...there needs to be a place for those to carve out those skills, more work needs to be done around that.

Rhianna found that the hiring practices in tech acted as an elimination process to keep undesirables (people who did not look like you) out, meaning the White employer did the hiring. She did not believe her workplace was an environment of inclusion even though her company had hiring initiatives for inclusions. For her, to get into the tech work environment, the main ingredient for success was to be a “White man.” She stated that employees must reflect the one who does the hiring; this is a practice where employers [White men] predominantly hire those in their mirror image. Her statements showcased the many pathways Black women must go down to create opportunities in the realm of leadership in tech. *Zari* described the work environment as,

Knowing that you can protect infrastructure that everyday people rely on like communication...there are people that want to see these things destroyed...whenever I am developing products or prototyping ideas that prevent destruction and help the average citizen...I feel like I’m doing something good for society...things that they don’t even know to worry about...on a global impact I’ve been involved in influencing standards that are defined across the world...that is the biggest success on the technology side...on a personal level I’ve been a single mother my daughter has been my motivator...being a good mom and being in technology is a another big accomplishment...the challenge has been myself, having fear, the imposter syndrome...you question why am I here...the reason I question that it is because a lot of the time I’m the only one, a Black female...sitting there alone at a tech conference.

Zari singled out her daughter during the interview and discussed being a single parent. Although each participant briefly mentioned the importance of family support,

Zari was specific about the motivation being a parent gave her. She felt she had extraordinary experiences and life-changing opportunities while dealing with thoughts of isolation when she entered tech conferences as the only Black female, the only woman, the only person of color, as well as the only American in the room. *Sheniqua* described the work environment as,

Sometimes it's awkward when I go to raise my hand in meetings... when deciding who to eat lunch with...there have been times when I felt I don't want to do this, is this what the tech world looks like...overtime I got over that...five or ten years into my career people would come up to me because of my published work...it's easier to know me because I'm the only one...at that point I felt respected in the community, now I'm exchanging business cards with these people...now I'm collaborating with these people that don't look like me from different organizations...at that point I felt better emotionally...feeling like you're not heard, your ideas don't resonate in the moment but someone else repeats the idea...this is the everyday work environment.

Sheniqua describe being disinterested with the tech environment early on in her career; however, through personal growth, she determined her impact was more important and worked through the obstacles of getting heard and recognized for her product development. *Hippolyta* described the work environment as,

Getting over myself was a big deal...removing my self-doubt...knowing I deserve to be there I worked hard to get there that a good feeling...my work is innovative...I'm not leaving I thought this even when I knew, I could hear, and feel others didn't want me there...staying made me feel good about myself...but

staying also made me tired...mentally exhausted from the work environment and empowered by the work...feeling lonely a lot of the time...not seeing others that look like you having to wait to leave the office to vent, get out my frustrations...feeling I'm not heard.

Hippolyta described a love of her work and the creative aspect along with the mental and emotional fatigue of feeling undesired in the workplace. She described the necessity to gain self-confidence to conquer self-doubt in the tech work environment. She added that it is necessary to love the work because the days are long; many times, she does not give herself the self-care she desires and needs.

In the summary from Research Question 1 (see Table 2), the participants discussed a range of emotions connected to feelings of isolation such as stress, exclusion, anger, and loneliness. Every participant discussed that many of their fellow non-Black colleagues assumed they were representation for the entire Black female population as well as the entire Black race in the United States, as if all people within a group have only groupthink without any original or individual thoughts.

Table 2

Participant Research Question 1 Summary

What experiences in the work environment have impacted the self-efficacy of Black female technology leaders?

Participant Research Question 1 Summary

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1. **Feelings of isolation**
 2. **Considered by fellow non-Black employees as representation for the entire Black population**
 3. **This is what success looks like for me**
 4. **No one looks like me**
-

Note. SEA-self-efficacy awareness

The roadmap for success was different for each of the participants. All participants had extreme struggles and challenges in the tech world, and many of these challenges were not experienced by their fellow non-Black colleagues. These challenges included (a) longer years in a position that they were overqualified for when they were hired and or promoted to while watching non-Black coworkers receive the position without having the qualifications for the role, (b) having to apply for a higher level and higher paying position outside of the company that employed them to move into an executive leadership level because the employer did see them as a serious candidate, (c) obtaining credentials and higher education that they had to pay for themselves yet saw White colleagues be regularly afforded advanced corporate funded educational opportunities, and (d) and accepting an employment position self-acknowledging, and understanding that they were seen as a novelty and not the norm in the tech workplace.

The participants disclosed that it was normal within the tech environment for them to never see or work with other Black females. On the rare occasion that two Black females did work together, they would create a bond of support to lift each other up. As mentioned in Chapter 2, Black females are predominately provided the “housekeeping” positions in tech, which come with lower pay, no authority, and no power as a decision maker.

Three of the participants discussed internal inclusion initiatives; however, only one felt that the initiative had potential. All 10 of the participants shared that they went outside of their organization to get support as a Black female in tech because this support was not available and/or either beneficial internally. Four of the participants stated that internal programs that are set-up to support Black employees end up being commandeered by non-Black individuals who have no understanding of Black women’s personal or workplace experiences. The events became more antagonizing than goodwill. One participant stated that she felt like a “media prop.”

Research Questions 2 Findings

What experiences with self-efficacy tools have Black female technology leaders found useful to address challenges in the work environment?

Question 2 research findings were discovered by asking the participant about their experiences with self-efficacy tools. Participants were asked to identify which self-efficacy tools they found useful for navigating and addressing challenges in their work environment. Participants described the emotions and behavior necessary to be effective and productive in the technology work environment. These emotions and behavior created achievement and approachability, beliefs that kept them mentally strong and self-empowered, and thoughts that influenced how they think about themselves. *Sonequa* shared:

The first is going back to my mission of helping people who have the same experiences as me...helping Black and Brown kids move forward...I know they need someone to be in these rooms because they aren't in the rooms themselves to speak up for themselves...I know that I have a place of privilege which in that sense I can continue to push for them...I'm going back to this mission that I need to be the person that Black youth especially Black girls can look up to and say this is something I can do because I didn't have that and I know how important it is to have that.

Sonequa's voice during the response to Research Question 2 was filled with pain, fear, and agony. At times, her voice indicated a deflated, depleted, and diminished mental and emotional capacity. Optimism appeared whenever she spoke of Black youth, especially when stating the importance of her support of them and for their future. She showcased determination in a workplace where she felt everything she did and stated were under a microscope to be easily

dismantled if she were to overstep the perceived boundaries set in place. Her goals and objectives to support others based on her experiences were never deterred but altered when needed. *Akilah* shared:

Challenges is vernacular, it's language.... the culture nuances around acronyms and how decisions are made...the need to be a quick study and ramp up to understand the ways by information is being shared so you feel like you can be a part of the decision making process to be fully informed of the day to day work...be able to understand the tech industry speak...only seen as an engineering culture when there are so many other roles and opportunities inside a tech company that you want to ensure is not lost...engineers on the front and back-end, product managers, program managers, HR functions, communication functions, finance, legal and council...a number of roles that are often times not promoted so then people assume that they can't necessarily pursue a career in the tech industry...they believe there is only one way in.

Akilah stated the importance of effective communication, which she used strategically. Her focus was on understanding the physical, verbal, and emotional language of those in the work environment allowing her to take informative actions. An additional action she implements is understanding the tech core culture, and social setting that includes knowing the roles of others regardless of their employment hierarchy level. These techniques of emotional intelligence assist her with branding her leadership.

Imani shared and described:

On my old team I was super lucky to have another Black woman, that was the first time that has ever happened to me which was shocking experience...we leaned on each other a lot because we were both new kind of hired at the same time trying to navigate this large

company and the politics behind it and I think I credit my level of confidence at this company to her knowing that we were doing this together and that I wasn't really alone...One of the fundamental beliefs that I have is that I lead intentionally, intentionality is important to me when it comes to relationships with people especially in the workplace...specifically for me I'm very intentional around how I communicate, what in fact can impact a person in their motivation and intrinsic way of wanting to do something.

Cedrica shared and described:

Physically...I have a big smile, I think that is something that can be frustrating because I think it is something that we are expected to do, to be, and to act...it's like we have to be on ten and smile...oh my gosh you're so funny while laughing at jokes that are not funny but you know you've got to play the part and it's not stirring the pot it's not saying, I don't really agree with that...for a very long time being approachable was a lot of smiling and nodding and it was exhausting because it was very performative, and I had to bite my tongue for a very long time.

Fatema shared and described:

When there's so much change in an environment and when you're having to lead and manage through the change...the emotion of how you are dealing with a lot of change can feel tough...going back to the feeling "if you're the only one" that is identifying as a person of color on your team and you have such instances like what we experienced with movements such as the Black Lives Matter and things of that nature and being identified as a leader that is informing ideas around frameworks of how do you deal with and support employees in that way...thoughts that influence how I think of myself is this

notion of I'm tired, this notion of I've done a lot which is a balance that I work on all the time that influences who I am...that push pull in my personal life...I've done a lot, I've accomplished a lot, I've seen a lot...I'm often tired and I don't acknowledge that enough I'm tired and the mental agility around this work is a lot... I have to wake up and mentally acknowledge I'm kind of tired today.

Hanita shared and described:

Emotions overall as to leading your team and who you are responsible for is a constant feeling of thinking around...am I being the best, my best self when it comes to leading and providing my team with the level of support that they need to be effective, efficient and innovative in their respective roles...that emotion of reconciling are you doing all the things that you need to do to support your team is very real...I think the emotion is sometimes feeling unbalanced and imbalance of that there is so much that needs to get done and your constantly asking your team to show up to do this thing and at the same time we're in the middle of this pandemic and social unrest is happening...the imbalance of am I showing up for myself, am I showing up for my team...it's certainly an emotion I would name in this space.

Rhianna shared and described:

So many companies are hiring diversity inclusion officers all these roles that didn't matter to them a year ago and right now, I think a lot of Black voices, Latin X voices, Indigenous voices are top of mind for a lot of companies... I am sure it is to fill a diversity quota, but they need someone in there that knows that the Black voice is important regardless of that knowing that I do have important things to share and someone needs to hear them is something that is also keeping me going...I try to be very

vulnerable and show my vulnerability to allow for others to be in the space where there is some level of safety...I also approach things from a very human people centric mindset by simply recognizing that there is someone on the other end that has a lived experience that may not be like mine, that I'm eager to hear about.

Zari shared and described:

I think as much as I don't like this which was part of my life for so long...I think the way society and the media views Black women is always going to be top of mind for me...how we're represented, the things we should be doing, the way we should look, that was all that I knew for eighteen years...because growing up I was one of three Black girls in my city and everyone else was White, it was a very jarring identity experience besides my parents the only other Black people I saw were on TV and so I thought I had to model my life after that, society was telling what I needed to look like... I tend to remove the stress from the environment by being calm, by changing my tonality my volume in my voice to connect with people to create a level of comfort and that is intentional for people to feel that I am approachable...that is a behavior that I am demonstrating when I'm being most approachable.

Zari reflected upon the constant objectified images much of the media has placed Black women since slavery. *Zari* discussed how those images can become front and center in the workplace and infiltrate Black women's daily lived experience. Due to educational disparities, many Black families send their children to be educated at schools where their classmates and teachers have limited or no foundational knowledge of the Black experience. This experience affects one's self-image, self-efficacy, and well-being, and may cause an identity crisis. *Sheniqua* shared and described.

Confidence, eighty percent of the time when I go into meetings and I was nervous but again you can't let them see that...they're sort of waiting for you to fail, you need to go in with whatever the presentation is, anticipate the Q&A, have the follow ups on lock...I just tell myself I need to over prepare in every instance...I don't know if that was really healthy because I would have to stay up for so long trying to memorize and do all these things...finding what has worked for you so far, what have you been doing to not be fired...a lot of the time things can be one size fits all and that doesn't really resonate with a lot of people...I'm thinking about ways I can continuously expose people to a new things that allows them to transform their behavior, thoughts, and decision making...what influences how I think about myself revolves around, what more would I like to do which is about influence...I've found success in remembering who my audience is and speaking to them...weaving empathy into projects has been really helpful as well...feeding stuff to other people who have different characteristics than mine because I know that they will be heard.

Sheniqua discussed a confident nervousness in a judgmental environment. Regardless of her environment, it was important to her to be a transformational leader and open the mindset in the workplace. She wants to tell her onlookers—whether they are fellow colleagues, core team players, and or company partners—to consistently influence behavior for the positive. Similarly, *Hippolyta* shared:

In general I think the strategy is the community...they know the worst of both worlds and they were able to connect with me on that level and validate my feelings because a lot of the time that didn't happen...yes, just talking with the community...I believe that what

keeps me empowered as an individual is that I'm a people connector I understand the importance of being resourceful and connecting individuals together to co-create together, to share resources, to share best practices...I believe that is an important part of my work it's very true to who I am as a person...what keeps me empowered daily, I'm a learner I'm open to new ideas, I'm open to taking in new information that frame my thoughts and sets of experiences...My behavior in the work environment that creates achievement is, I understand the importance of true partnership relationship...understanding that I did not have to do the work alone, that behavior and that mindset is all around how to leverage resources to get things done...that has allowed for me to come quickly into the tech industry and get wins quickly.

Hippolyta illuminated the values of relationship building in the tech workplace as well as outside of it. Her community of Blackness keeps her empowered to take on the challenges within the workplace. She discussed the importance of being open to ideas and making sure the person on her team is given the credit for the design. Her actions create loyalty, respect, trust, and a sense of belonging, making her leadership stand out because she makes her people stand out.

In the summary from Research Question 2 (see Table 3), the study participants contributed varying tools that aligned their positionings for qualifying as a leader, such as: (a) being an individual who possessed a positive mindset, (b) having confidence-building practices for themselves and others, (c) being determined to move beyond perceived or real barriers that open doors for those not in the room, (d) positioning themselves to gain insight used to understand others, and (e) making use of the innate ability to bring forth a performative tactic when needed or required, which was sometimes an automatic defense mechanism to shield discomfort, fear, stress, and or a

momentary lapse in confidence. Participants used these strategically for self-control and self-empowerment and effective personal development, which affects self-belief. The technique of uplifting one's positive thoughts no matter the environmental factors is a keystone trait that removes barriers from distracting leadership achievement only if you keep a watchful eye over the self. This was a skill used by the participants to elevate their mindset above a circumstance, regardless of the workplace condition being deemed beneficial or not.

Table 3

Participant Research Question 2 Summary

What experiences with self-efficacy tools have Black female technology leaders found useful to address challenges in the work environment?

Participant Research Question 2 Summary

1. **Leader qualities; transformational, positive mindset and confidence building practices, determination, understanding of others, performative mode a necessity**
 2. **Responsibility to and for others, a need for workplace diversity**
 3. **Must push through for future Black girls and women**
 4. **Lack in self-care, tired but must keep going, I have done a lot**
-

Note. SEA-self-efficacy awareness

Each participant forcefully declared the importance of locating trusted leaders to observe them and their interactions with others early on in one's career. Participants determined if these individuals were trusted by the many or just the few, which provided insight into their leadership role, style, intent, and objectives. By doing so, the participant determined if they wanted to align with the trusted leader. All participants felt that the previously mentioned leadership attributes described as having a positive mindset, implementing mental fortitude, applying confidence building practices, gaining the

understanding of others, having focused determination skills, and being a transformational leader is required to succeed as a Black female in tech.

Every one of the 10 Black female participants found it necessary as a leader to look out for those under their guidance and to have the awareness of those seeking a nurturing team-building opportunity. They discussed the importance of workplace diversity as something they rarely experienced. These females discussed the lack of diversity experiences they undergo along with how diversity efforts for too many individuals cause suffering from the lack of knowledge regarding people who did not look like one another or do not share the same experiences and/or background, whether it be the community, education, career, and or income exposure. Self-empowerment for these leaders is advantageous in developing a more likeminded harmonious people-empowered workplace environment, which is currently missing in too many workspaces.

This study participants described pushing through their careers in moments of struggle, hardship, anger, and despair, unwilling to give up in instances where some in their workplace environment did not want them there or when they found fellow employees rooting for them to fail. The participants stated pushing through so that the future Black female tech leader will succeed beyond their current achievements.

Research Questions 3 Findings

What recommendations do current Black female technology leaders have for aspiring Black female technology leaders?

Question 3 findings were discovered by asking the participant to share recommendations for aspiring Black female technology leaders, including recommendations for best practices such as mentoring, strategies, and workplace support. *Sonequa* shared:

Black women in tech all come from so many different backgrounds and have different stories somehow we all end up sharing this one thing of being undervalued and disrespected...it's such a bizarre thing to think about, you could find any Black woman on the street and you might have two completely different life stories but generally that shared experience is always going to be there, so that was something that was frustrating but also how can we use that to our advantage to come together to overcome than just venting...We don't already have someone to vent to in the workplace. I think whenever I see any Black woman in the tech workforce, I immediately try to connect with them for lunch pre-COVID ...we all have this one bond over how people treat us.

Sonequa described turning disadvantages or challenges into an opportunity. She described not always having someone in the workplace who had the shared experiences of a Black female; if you see another Black female in your workplace, build a connection and bond of support. *Akilah* shared:

It is important for leaders to understand who the decision makers are, who are the individuals inside the organization that people gravitate towards when it comes to praise, respect, when it comes to being revered as an individual that is trustworthy...when I started at the organization or any organization in a new role, I'm very observant I'm paying attention to how people engage with one another, I'm paying attention to their communication style their repeated behavior in various situations to understand why people identify them as trustworthy or revered in some type of way.

Akilah shared and described the benefits of workplace observation, which involves watching how others interact to locate threads of repeated patterns. She additionally spoke of quickly finding and learning about the individuals who are regarded and trusted in the work environment, and to have effective communication for identifying the leaders and developing your leadership style. *Imani* shared:

In high school and college there was an opportunity for mentorship but not the ones I really wanted which was generally from Black professionals...it was a lot of college and career centers telling me to go and talk to this professor because they like the thing that I'm interested in, but they aren't going to tell me how to navigate my life post college which is really critical for my professional and personal development...I can go and talk to someone about art all day but how can I get into art as a Black professional, that was not there.

Imani described looking beyond existing boundaries for mentors; there is no need to just settle for what is available in your current environment. She recommended finding a mentor who can help the individual plot and plan a life and or career course. *Cedrica* shared:

Actions steps...come in learning the business, your business acumen is very important, period...understand how decisions are made what are the frameworks by which people are making decisions to make decisions, money, people resources, product scalability...you have to understand operational frameworks regarding how decisions are made...as a leader it is so important to have vision and be able to articulate your vision and to be able to influence that vision...it is so important for a woman to be consistent in execution...consistently execute, especially for a woman inside the tech industry...lastly trust, you want to be identified as trustworthy, be a trusted advisor a person to be trusted

as they say they are going to do...it's one thing to execute consistently but you want people to know that you are going to do as you say you are going to do, I think is very important...all of these come with some form of implementation.

Cedrica described the importance of adapting, learning, and understanding the business and the environment you are in. She identified that being a woman in the tech environment required a great command of uniformity and cohesion for stability in your performance. Most importantly, be a person of your word: "do as you say you are going to do." *Fatema* shared:

I'm trying to think about what I would tell myself...what I would want to tell myself up in the mirror every day...one I think is the most important, it's never about capacity only opportunity and I think so many Black students think especially that they aren't good enough because they aren't at Stanford or their parents don't have a network to get them a job after...but it's never that, we just historically have never been given these opportunities...there are so many other roadblocks that we have to go through...that's what's holding us back not your intellect not how charismatic you are...it's not you, it's the system... it's just like acknowledging that this isn't a "you" problem this is how the world has viewed us...we are all we've got and we are really the only ones that will help us get through at the end of the day.

Fatema shared and described the importance of knowing that you are good enough for whatever you choose to develop in your life. She discussed that education is important, but the individual should never put themselves down because they did not get their degree from an ivy league university. She stated that comprehension, acumen, and the individual's performance pave foundational pathways for success. She stressed to not blame yourself for limitations in the workplace but invent new ones instead. *Hanita* shared:

One particular relationship, this person, she is a partner a programmatic expert of my teams work...she's also the person that provides guidance, general counsel to the company...it's reciprocal we both have identified in each other that we are trusted partners to one another and trusted partners around situations, people dynamics and information...we use an internal platform called Slack to communicate and send information quickly...if I'm in a crisis and I need immediate advice and counsel on how to deal with a person or the situation itself I'm Slacking this person.

Hanita described building mutual trust with individuals regardless of shared experiences. Seek out mutually beneficial relationships and create ways of communicating with one another when support is needed. She stated that it would be a challenge to be the expert in all things, so locate and partner with the expert you trust and require. *Rhianna* shared:

My mentorship comes from identifying who the leaders are, who those people are early on...they are in some instances individuals that report to me on my team...they are individuals that I partner with meaning they are on a cross-functional team or our work overlaps and we work on projects together...that mentorship relations for me also comes from individuals that are subject matter experts...have a center of excellence around a subject matter that I then want to learn about that data or information...try to figure out what's the possible best way to engage, or to influence, or to collaborate it's a shared value that we have for one another in terms of how we are showing up for one another in the mentorship relationship.

Rhianna described creating cross-over connectedness that empowers relationships [for current and future team building efforts], which builds workplace power and authority. She

described how advantageous it is to gain the trust, insight, and knowledge of subject matter experts; doing so helps your team, your work product, and productivity. *Zari* shared:

Be willing to learn and grow...we qualify that as inventing and learning inside of my company...when you come into the tech industry people are going to expect you to espouse values around innovation and to be thinking about in that way and what I mean by innovation, you don't have to be the marketer, you don't have to be the product designer, but it's innovation around a process the way by which the product that they're coming up with can be implemented...innovation around efficiency, identifying technologies in ways that decisions can be made...it's also innovation around the people we need to hire to go and ship a thing and it could be a measure around programs it can be an important part of your values when you're coming into the tech industry.

Zari described expanding your awareness, knowledge, skill, and understanding to continually revolutionize yourself for consistent fundamental growth. She described knowing your values, sticking to them, and bringing that skill to your work environment. In other words, be secure with yourself, know what you do best, and excel at the performance of it. *Sheniqua* shared:

For aspiring Black females in tech, one recommendation is going to be cataloging your experiences to date of other industries and really understand what has allowed you to be successful there meaning your skills and the behavior by which you're were demonstrating and developing your skills and then being able to understand that if you are moving into another industry like tech those skills are still very much warranted, necessary, and important...so, you don't want to discount...there is such a thing as transferable skills and you have to know what your skills are.

Sheniqua described journaling to track awareness, experienced gained, and the differences in the workplace environment for identifying achievements or the lack of the objective. She described the importance of understanding and making use of skills that may bring innovation to a new workplace and a new team. She stated that transferable skills need to be front and center; Black women should know the value they add to any organization. These skills include behavior and emotions. *Hippolyta* shared:

I didn't really have or seek mentorship because my experiences had been so poor in the past but once I got into tech I said I need something...it's interesting because a lot of my friends who aren't Black, the mentors came to them and it was like let me help you or their college and career center knew who to give them to...I feel we have to do so many more things...there seems to be a bit more inclusive hiring practices that will allow companies to have more Black employees, we'll be able to have these networks and resources as such that everyone else has been able to build, except for us.

Hippolyta described recognizing the need for mentoring and wished she had found a mentor earlier on in her career. She stated that, as a Black woman, you have to work harder to locate mentors and shared the importance of becoming a mentor so those coming behind you do not have the challenges in locating a mentor as she did. She described how her White colleagues had mentors who were readily accessible and seeking mentees. Additionally, she recommended finding someone as a mentor who has demonstrated their ability to have an impact repeatedly. These mentors may be leading teams or may be leading a large body of work in a large company.

The summary shown in Table 4 was derived during the discussions regarding Research Question 3. The participants shared a common thread of desire to work with outside consultants and strategic partners to build (a) bonds and positive relationships in their departments, (b) cross-

connected and lateral teams, (c) internal work hubs, and (d) back-end support to create a collaborative and dynamic work environment that supports a creative and positive workplace atmosphere.

Table 4

Participant Research Question 3 Summary

What recommendations do current Black female technology leaders have for aspiring Black female technology leaders?

Participant Research Question 3 Summary

1. **Create new and shared beneficial bonds**
 2. **Early on locate a mentor that has a good alignment to your needs and goals**
 3. **Be confident, creative, and communicate effectively, have self-belief**
 4. **You must be trustworthy to attract and find like-mindedness with trustworthy leaders**
-

Note. SEA-self-efficacy awareness

The participants emphasized locating multiple positive mentor and mentee relationships early on in your career. These relationships included reverse mentorships, where mentoring flows in both directions not just from the perceived leader; one is never too young to share knowledge reciprocity. This was a technique each of the participants engaged in, which created more successful opportunities for career advancement by aligning likeminded needs and goals. Confidence was stated to be a core career enhancement, especially when feelings of doubt and fear appeared: “even if I feel fear, I can never show it.” Participants felt and knew they earned and deserved to be in the room, but recognized they had to overcome enormous barriers to earn their place at the leader’s table. Participants’ emphasized trustworthiness as the quality that they look to

and for in others, as well as within themselves. Participants posited that you must have trustworthiness to see it in others, attract it, and harness it effectively.

Additional Findings

The additional findings from the study were touched upon by all 10 study participants. They each mentioned multiple Black movements and discussed their thoughts about Black Lives Matter, particularly the murders of George Floyd, Breonna Taylor, and many others. Each participant explained how they were expected to provide the reasoning or a defense for such happenings in the United States, which is not part of their job description. Such repeated circumstances of disparity that urge a need for racial, economic, educational, and social empowerment have afflicted Black communities since slavery. The participants in this study recognized that they have an open window for reevaluating, redefining, and discussing sensitive topics within tech organizations; doing so may provide opportunities to design, develop, and implement new realms of career and leadership roles for themselves and future Black female tech leaders. An additional factor is that the current racial environmental instances changed some of the perspectives of non-Black employees, some for the better and some others for the worse.

A disturbing but unsurprising factor was that many of their colleagues had little to no foundational knowledge of the experiences of non-White populations; thus, the participants became workplace living libraries regarding the Black experience. Their fellow non-White employees had knowledge of the White American journey through their educational experience, corporate pipeline, the government, the media, magazines, music, television, and movies, which generally depict White leadership as the right and acceptable leadership framework. Throughout history, the portrayal of Black women within these same aspects has predominately portrayed them in a misogynistic manner. The participants in this study were aware of the destructive view

of Black females in the United States. This awareness encouraged participants to take greater actions and efforts upon themselves when leading others, which requires a delicate balance between self-belief, judging one's behavior, and the effects of environmental circumstances.

A subject matter that was threaded through each of the participant's discussion was how earlier in their careers the lack of awareness, knowledge and or the difficulty in finding a network of established Black female tech mentorship programs was troubling, which is something future leaders especially need. Black women outside of tech continue to face difficulty finding mentors who are available and accessible. Many current mentors are overloaded with the demands of their time, which includes the demands and requests placed upon these Black female tech leaders. Two participants highlighted the difficulty they had finding mentors early on in their educational journey due to experiencing racial isolation in higher education, which limited finding and building mentorship relationships that create meaningful career opportunities. One participant shared her experience and insight as to how readily available mentors are for White women and men advancing their careers.

The imposter syndrome was humorously discussed and found to be a necessary survivor tool in tech to disguise when one might be intellectually doubting themselves or their capabilities. Much of the doubt the participants in this study encountered came from critiques from their male White colleagues. In the technology environment research revealed that Black female's knowledge, skill, and acumen are undervalued, and underutilized. For example, one participant explained how her ideas were of interest when shared by her White counterparts, a self-forgetfulness strategy [when the individual removes personal benefit and recognition from the circumstance to get an important idea, and or concept considered, or implemented]. The participant developed this process because she knew when she was not being heard and her ideas

were not being examined at an executive leadership level. A balancing of work-importance vs. self-importance. The fast-paced pressures endured in the tech environment—whether it be the performance phase, mental depletion, and or emotional duress—can cause an amass of stress, which these participants felt was par for the course.

With all the effects of self-efficacy these Black females face in tech, they recognize a great need to address and focus their attention on their personal lack of self-care. Some stated that this lack of self-care was due to working longer days well beyond the 8 to 5 work period too many times a week, resulting in having too little “me-time.” Two recurring responses were, “I’m tired and I don’t acknowledge that enough” and “I’ve done a lot,” referring to the fact they would like to stop or even slow down their workload. However, participants felt that they could not slow down when they had advantages others did not have; they did not want to or even appear to take these advantages for granted. The participants discussed how others deemed them as trailblazers or unicorn-like because they had risen higher in the industry than many other Black females in tech.

An individual’s name is personal; it is an identifier and indicator of who they are and the family they come from. One participant discussed how her name is often mispronounced. Colleagues could pronounce names that are considered White and mainstream, such as Sally, Jane, and Mary, but a name that was not White and mainstream was not given any effort. *Sonequa* stated: say my name properly...just get it right, try...make an effort, it’s not that hard.” A name carries an emotion that can be tied to self-belief creating and environmental and mental effect.

The study's findings revealed multiple factors that kept participants in the field of technology well beyond the personal benefits and having high profiles of achievement. These factors included: (a) if they left the tech arena, there would be no one in the tech community to open the door or create opportunities for others that look like them, or for those having similar backgrounds as theirs, and (b) it may not appear acceptable to family, friends, and or their community for them to take leaving their employment under consideration because they felt others had sacrificed in getting them there, which encompasses their ancestry of slaves. Thus, some of these Black female technology leaders stay in their positions even when it is burdensome, whereas others stated staying because of the opportunities in innovation and creativity and a high income that empowers having a healthy lifestyle. The tech atmosphere drives conflicting conditions of self-efficacy that requires systematic self-awareness to stay emotionally and mentally well and balanced (Bandura, 1991c). Ten of the females were hopeful about change. One participant did not foresee changes happening in the near future from her vantage point; rather, she anticipated more placating with no real actionable prospects or beneficial outcomes.

Summary

This chapter presented the results of the study investigated on the self-efficacy awareness of Black female technology leaders. The findings section started by describing and analyzing the dialog transcribed from each participant's interview. At the beginning of each account, the researcher provided a profile of the participant that removed identification markers due to the minuscule percentage of Black female technology leaders, which included their job title followed by any specific professional achievements that offered a fuller portrait of the individual's

identity. Involvement with self-efficacy awareness outside their technology workplace setting was also given. Next, description of the connections the participant made between environmental circumstances, self-monitoring, and judging one's behavior were documented. After this, the researcher furnished further description of the participant's responses that were relevant to the three guiding research questions central to the study objective. Correlations were made between the wording of the questions and the participant's discussion provided in response to the interview questions. Then, analysis based on the entirety of the responses provided was examined with NVivo. At this phase, the discussion was analyzed to apply Albert Bandura's Social Cognitive Theory of Self-Regulation, the theoretical framework for the study.

Successive to the initial phase of the investigation for each participant, the researcher proceeded by discussion with the participants' communication as it pertained to the 10-interview questions formulated from the three guiding research questions for the study. A collection of experiences was organized to exhibit the commonalities, shared encounters, and individual insight amongst those central to illuminating the happenings of Black female technology leaders. The primary analysis was executed utilizing the three subfunctions from the Social Cognitive Theory of Self-Regulation.

CHAPTER V

SUMMARY, DISCUSSION, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Summary

The purpose of this qualitative study was to investigate the experiences of Black female technology leaders and understand how the environmental circumstance in their workplace affects leadership self-efficacy awareness. The researcher sought to probe the lived experiences of Black female leaders in technology to provide a direct vantagepoint of how Black females encounter the technology atmosphere. Through organized interviews, 10 participants shared stories of their tech work environment, leadership technique, self-belief, and the outcomes, benefits, and consequences from the events in their workplace setting. Previous studies detailed how Black females are not seen as leadership material; Black females undergo racial, social, and economic bias, underrepresentation, and less pay for more work. Chapter 4 presented the 10 participants' perspectives of leadership self-efficacy awareness and how the technology culture influenced their overall experience. This chapter presents discussion and conclusions based upon the findings, including implications and recommendations.

Discussion and Conclusions

The study findings were presented in Chapter 4, bringing forth the lived experiences and words conveyed through interviews with 10 Black female technology leaders. Although participants shared their lived experiences and perceptions, participants' experiences cannot be generalized to the larger population of Black female technology leaders due to the limited sample size of 10. Participants had varying backgrounds across the technology spectrum; however, their experiences with leadership and the tech culture were a shared common experience filled with

similar negative characteristics and aftereffects for these Black female tech leaders. Despite these challenges, these Black female technology leaders share the determination, audacity, and the courageousness to thrive and be triumphant in an atmosphere overflowing with mental and emotional roadblocks.

Research Question 1

Research Question 1 was: What experiences in the work environment have impacted the self-efficacy of Black female technology leaders?

This sample of Black female leaders consistently worked to improve their self-belief despite persistent workplace challenges and obstacles that negatively impacted their self-worth, intellect, ideas, knowledge, skill, talent, education, and income in the tech pipeline, which in turn affected their self-efficacy and mental and emotional well-being. Participants' experiences began prior to their current tech leadership position. Many other Black females have completely left the tech environment to pursue a friendlier enterprise of employment. *Hippolyta* shared one possible reason for Black females' departure from the tech field: "I've heard stories where people were not acknowledged for work, they've done on a publication that would never happen to me...how did this go out the building without your name on it...so you need to speak up for yourself." Additionally, Basic Service Element (BSE)—a commonly used acronym in technology—describes why so many from the Black female tech population leave the industry due to experiencing Black Systemic Elimination. Indicators show why some Black women in the tech world struggle to act on their own behalf, a loss and diminished self-efficacy. This was not the case for the participants in this study.

All the participants discussed being drained mentally and emotionally from being stereotyped in a White-male-dominated arena. This exhaustion was predominately due to

workplace stress, isolation, not enough “me time,” and rarely having anyone at work who looks like them. In the work setting, “Black women face the same struggles as White women; however, they have to face issues of diversity on top of inequality” (Hall et al., 2012, p. 207). This research provided a direct reflection of the disparities Black women consistently face. With a vast majority of White men in leadership positions in tech, creating a safe environment for Black women has not been of high concern. The tech atmosphere propagates sexism, racism, White-male bias, and the “men play, women pay” structure, where women have more work and less pay (Chang, 2019). Black female leaders in this setting find it difficult to obtain career progression due to being placed in professional holding patterns that limit income, authority, and leadership roles. The matter is illuminated by data indicating that only 3% of those employed in tech are Black women (Ashcraft et al., 2016; Daley, 2021). These Black female leaders are forced to find ways to be heard in an environment that has not been welcoming to them. They take measures to connect with other Black females, such as developing new networks and safe havens to speak out about their shared occurrences in tech and determine what they can do about it while supporting one another.

Each of the participants shared some form of frustration regarding others thinking that they represent all Black females in the United States. The participants were each intentional with how they presented the visibility of Black women in tech leadership. Specifically, participants understood that, due to racial and gender bias, one misstep would be a major setback for how Black women are viewed, especially by their colleagues. This realization placed the strong belief for developing spaces where diversity is thriving instead of the current condition, where Black females in tech is an irregularity. This present-day structure creates an atmosphere of exclusion and disempowerment where Black women in tech are deemed undesirable.

The participants spoke of innovation and creativity in the workplace and discussed the value they felt when doing work that was unique, state-of-the-art, and important. At the same time, participants felt that value was not always placed on the skill, talents, education, or intellect that got them their leadership position; rather, value was placed on race and gender. Participants spoke of the experiences of their ideas being ignored but well received when hijacked by a White male or White female, which one participant learned to initiate to get a concept accepted and implemented.

A few years ago, I started attending classes for my part-time MBA. What I noticed almost immediately was that my experience in the classroom largely mirrored my experience of close to a decade in corporate America: I'm consistently one of very few Black women and Black people in the room. In September, Ellen McGirt published an article in Fortune exploring why there are zero African American women running Fortune 500 companies. This lack of female leadership is important to explore, but what are the experiences of black women in the workplace *before* they make it to the c-suite? (Cheeks, 2018).

McGirt (2021) wrote: "Walgreen's next CEO, she is now one of 40 women running a Fortune 500 company—and currently, the only Black one." Unfortunately, at the time of this study, very little had changed in regard to disparities and isolation for Black females in the educational or workplace environment, as captured by the study participants. Researchers such as Rokach (2014) studied the effects of leadership alienation and determined that alienation "may lead to health problems and negatively affect social and familial relationships as well" (p. 47). Black females in technology have a two-fold tier of social, workplace, and familial dynamics experienced daily that did not deter their success, which were shared in this study. The study

participants turned obstacles into obtainable assets to develop and attain high-level leadership roles.

These participants regularly attend board meetings, business forums, tech events, and conferences as presenters and speakers with hundreds to thousands of people where no one is a person of color, let alone a Black female. Participants derived mental strength from a consistent drive of motivation, their family. Hall et al.'s (2012) findings elaborate on the hardships, and challenges Black females face, which align with the findings within this current study.

Analysis of the transcripts revealed five basic themes when racism and sexism are experienced as stressors for African American women in the workplace: (a) being hired or promoted in the workplace, (b) developing relationships with coworkers and mentors, (c) dealing with racism and discrimination, (d) being isolated and/or excluded, and (e) shifting or code switching to overcome barriers to employment. Stereotypes about the character and/or competency of Black female employees, whether conscious or unconscious, may cause some Whites to view a Black employee as a significant risk, which may block entry to a job or result in unfavorable and differential treatment and exclusion of Blacks in the workplace. (p. 213)

Study participants described environments that demanded courage, tenacity, a refusal of harnessing self-doubt, and a desire to provide for themselves an inner-refuge where they could derive self-confidence in a harsh and fast-paced work environment. Participants pushed ahead regardless of whether they were accepted by their fellow colleagues. *Hippolyta* expressed that there is power in being respected by your colleagues; being liked is great, but it is secondary to conquering and breaking down career barriers in the technology workplace.

The study results indicated that the self-efficacy awareness for a Black female technology leader is a prerequisite to entering the tech environment. Black women who enter an atmosphere with diminished or limited self-efficacy awareness have a low probability of career success and are unlikely to obtain a leadership role in tech.

To expand career and executive elevation, Black women too often decrease and shrink their full capacity of acumen, expertise, and comprehension so that others feel comfortable around them (Cheeks, 2018). This process includes accepting mispronunciation of their name or changing their name for the workplace environment. More than 50% of Black women who do not comply to this unspoken rule do not get a callback (Benjamin, 2019).

The study findings aligned with the results of Ashcraft et al.'s (2016) study, which revealed that the characteristics for advancement inside a tech organization mirror the White male figure with seniority status; the individual's qualifications, skill, knowledge, and performance are secondary elements many times. Ashcraft et al. further posited that underserved populations such as the Black female leave the industry due to such restricted opportunities for them in tech. As Catalyst (2021) stated, "Black women aim high, but emotional tax can be a barrier for success" (p. 3). Prior and ongoing research done by Catalyst showcases the constant persistent barriers women of color face.

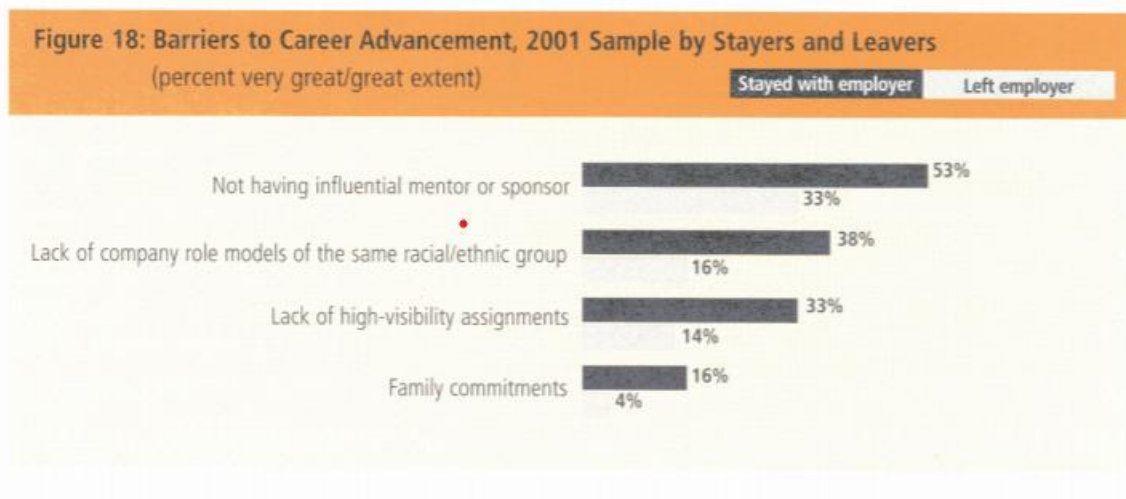


Fig. 3. Barriers to career advancement. Retrieved from Catalyst, 2002, p. 22.

Despite facing many barriers, the participants in this study spoke of their self-value and the importance of increasing the visibility of Black females and knowing who can help you beat the odds. Participants also discussed developing and organizing beneficial platforms for their community, bringing others under their wing, speaking up about ineffective hiring initiatives, collaborating with likeminded colleagues regardless of ethnicity, and developing intentional practices to increase self-efficacy and self-sustainment within a toxic White-male environment. The American Association of University Women (AAUW; 2016) found that “when women are in top leadership positions, women are more likely to be promoted to leadership” (p. 31). A segment from the AAUW report describes the following:

Some prominent companies in the United States have voluntarily adopted diversity goals and disclosed previously private data on diversity in their companies. The technology companies Intel, Google, and Apple have publicly disclosed their workforce numbers on race, ethnicity, and gender. The idea behind these efforts is to create accountability for the companies at all levels. (p. 31)

The researcher of this current study found that Black women are more likely to be promoted to leadership when more Black women are in top leadership positions; however, this prospect is yet to be implemented. As *Imani* recalled in her tech work environment, “the lack of representation and leadership lead me to believe there was no way that I would be promoted into these roles that I wanted to be in.” Self-efficacy awareness empowered *Imani* to overcome what was an apparent barrier. *Hippolyta* elaborated on the fact that Black women must be a mastermind at self-confidence and learn to control the influence she has over herself. You can love what you do while disliking who you are doing things with and where you are; however, if you do not discover how to merge the three together for your benefit, you might not make it in tech or anywhere that has a similar environment.

Research Question 2

Research Question 2 was: What experiences with self-efficacy tools have Black female technology leaders found useful to address challenges in the work environment?

This study found human capital to be a significant tool for building powerful relationships that went beyond racial barriers and workplace inequities. Abid, Arya, Arshad, Ahmed, and Farooqi (2020) found that “thriving at work is considered as a source of personal growth” (p. 303). Throughout their careers, Black women continually develop strategies that connect them with beneficial and strategic relationships in the workspace. Each of the 10 participants discussed trustworthiness as a representation of high-quality leadership. Participants spoke of the importance of conducting a due-diligence observation in the workplace and beyond to identify, locate, and connect with trusted mentors, mentees, colleagues, partners, team members, outside vendors, and organizations that have aligning goals and initiatives. Additional leadership strategies include (a) verbalizing and announcing that you are available for one-on-

one meetings, (b) doing an ad hoc on Zoom, (c) promoting conversations by leaving your office door open, (d) knocking on the doors of others, and (e) showing authentic interest. Women have an innate ability for building networks and relationships. Black females in tech must develop such community pipelines from scratch to keep themselves empowered to tackle workplace obstacles while building power and influence. These Black females promote their influences effectively by sharing their passion in person, over the phone, and through e-mail.

Johnson and Thomas (2012) stated that “Black women’s leadership influences are closely tied to personal and emotional understandings of historical struggles for equity during the Civil Rights Movement” (p. 160). The Black women in this current study used emotional intelligence to establish effective, mutually beneficial collaborations to design winning strategies for all parties involved. The study participants created a captivating audience of allies and alliances by ensuring that due recognition and promotion were awarded to individuals and team contributors.

The participants discussed other leadership qualities that framed them as stand outs in tech. These additional leadership differentiations included publishing work and research, gaining name recognition, sitting on boards, developing, and taking on new initiatives, designing products, creating personal development measures, being known as an expert in their field of knowledge, or being a guest speaker and or presenter at a national and or global event. Participation in such high-profile venues and events, the participants here were able to showcase their vast mastery of knowledge and acumen, making them a go-to incessantly and increasing their recognition and credibility. Participants in this study created, and/or discovered processes to overcome placement into stereotypical gender roles that lessen career momentum and power. Far too many Black females consistently experience limiting workplaces.

Women continue to encounter old stereotypes and attitudes that limit their opportunities. Entrenched views about gender roles and responsibilities still carry with them expectations about what women should and should not do. Women are expected to take on most of the family care responsibilities. And although many women work outside the home, there are often negative assumptions and biases about their priorities, work ethic, and abilities. These perceptions are often particularly harsh for many women of color, who must confront multiple biases based on their gender, race, and ethnicity (Frye, 2017, para. 5).

Sonequa shared:

You have to be careful of the angry Black woman stereotype...people make the typical remark about Black women, about them being angry we are just a lively people that's not about anger...I try to navigate the perceptions even though that may not be reality.

Participants incorporated strategically structured navigational practices into daily life to acquire higher levels of leadership, prominence, and power. The participants described a collection of advantageous self-efficacy tools and strategies to retain and maintain well-being, self-empowerment, influence, and purpose. These tools and strategies are as follows:

- Advancing Black women's career, income, and power because serving others serves you.
- Being purposeful and intentional with helping Black youth.
- Being optimistic and determined despite what things may look or feel like.
- Using and displaying powerful body language, universal language, effective communication, and emotional intelligence.
- Having foundational core self-beliefs and being true to oneself.

- Knowing the tech industry and the important players.
- Getting over yourself; you create your success.
- Being flexible, innovative, and open to ideas.
- Consideration for various communities, cultural knowledge, understanding, and sensitivity.
- Be a powerbroker; learn as much as you can as often as you can from the excellence shown by others.
- Codesign and codevelop.
- Recognizing, understanding, and appreciating the experiences of others.
- Have a mentor who will speak on your behalf without you being in the room.
- Do not take things personally, especially when you do not like the feedback.
- Write out you want to say, then think about how it will be received. Share it with someone trusted first.
- Do not make rash decisions even when you feel justified. Sleep on the matter and determine the pros and cons.
- Develop strategies to not internalize workplace dynamics. Find your mental, physical, and emotional refuge (golf, basketball, reading, and yoga).
- Honesty and integrity matter.
- Read a lot in your field of expertise and pull ideas from various arenas.

Hippolyta highlighted important navigational insight:

You've got to know how the system works in order to survive the system or beat the system, you need to know who's who, you need to know who's in your line of management the area you'd like to get into technically, what have they accomplished just

Google people honestly, you need to try things throw yourself out there and see what happens you won't know until you try. Be very curious. People will respect you even if they don't like you.

Her words showcase her dedication, courage, inner strength, and the command of the leadership she brings to the tech industry and beyond. Each of the 10 participants differently framed a similar sentiment.

Participants discussed how the many disparities in the tech environment created mental and emotional harm and distractions. One participant discussed feeling and feeding the need to disarm individuals with her smile early on in her career. She also stated that she consistently felt that she was in a performative role without an alternative option of switching her smile off. The circumstance left her drained. *Sheniqua* recalled thinking, "they're sort of waiting for you to fail...it's like you're being hazed, but you're in it alone." *Zari* lived in a community where there were only two other Black girls for 18 years. During this time, she was exposed to jarring scenes from the media regarding Black people. She found the tech environment to be similar regarding the limitations of Black female representation, engagement, and awareness. For example, her White colleagues gauged her approachability through her tone of voice. *Hippolyta* stated, "at the end of the day just being myself and being comfortable is probably what makes me the most approachable." These participants found different techniques to increase their approachability. There is no one size fits all methodology; the determining element happens in the moment.

The manner in which one navigates the workplace often changes. The study participants recognized the importance and value of being, practicing, and maintaining open-mindedness regardless of what may be happening. Participants continuously developed new possibilities by staying interested in other people's backgrounds, engaging with different cultures, and

appreciating the perspective of others. The participants shared that the workplace environment would be unbearable without humor. They purposefully incorporate lightheartedness and joy throughout their day; this practice included bringing in their spirituality, faith, and/or religious practice as a foundation of inner peace and inner strength. Participants spoke of the necessity to have fun, make friends at work, make others laugh, volunteer, try something new, sign up for events, take on a new challenge, and to be happy at work and about your work. Most importantly, participants nurture hope and have the belief that change is in the moment, be ready to support it.

Research Question 3

Research Question 3 was: What recommendations do current Black female technology leaders have for aspiring Black female technology leaders?

Although the number of Black female technology leaders is currently low, these leaders aspire to increase this number. Through belief, intuitiveness, and connectedness, participants expand their horizons by teaching and bonding with others. *Fatema* shared: “God has put people in my path to help me and mentor me and provide safety along the way as I try to pursue my career.” *Hippolyta* advised that, “if you want to be a leader surround yourself with leaders...coming from an ancestry of slavery look at what they withstood...from that I know I can achieve anything.” Those who are alienated and isolated in their career find passion and purpose through self-advocacy, instilled self-preservation, creativity, and innovation. Participants chose to stay in their roles despite this isolation, a decision that showcases participants’ mental and emotional fortitude against the odds. Forming self-influence and self-persistence encompassed in self-efficacy awareness.

Some participants compared their experience of finding mentors and mentees to mining for diamonds. *Rhianna* shared:

Having a peer mentor someone that is close in your career age is very important and there's multiple people when you are in a cohort that you are able to reach out to even when you take different career paths...a peer mentor is essential obviously you want to be with smart people.

Zari shared: "Mentors have come from doing well on my work I perform on my projects you'll end up building a trust relationship maybe with the project manager and I keep in contact with people." *Fatema* discussed her struggle to open up to mentors:

In the past I have participated in formal mentoring that are offered by the job...I work to get something out of it but, the issue there is the lack of trust they're a stranger, I never feel close enough to them to open up and ask the off the wall type of questions...there not as good but good enough that you get exposure and visibility.

The statements above represent participants' reflections of overcoming perceived and real challenges in the technology environment. Participants built and used relationships to find their first job, get funding for research, and collaborate on new projects and concepts. Participants aligned themselves with the smartest individuals, who they connected with as interns, managers, project managers, mentees, and mentors. *Cedrica* remembered:

If you are doing good work people will hear about it, and they will randomly ask you to come talk to them about a project or opportunity they have coming up...the start of a new and different kind of relationship.

Participants honed their skills and taught these skills to others. Participants made an effort to be known for the good they do in the world and not for what they have. Others are speaking up

about, and for them due to their inspiring authenticity at women's conferences, and diversity conferences as presenters and speakers. Participants stressed that building relationships with people beyond a work task is another way to build trusting invaluable relationships.

The culture developed by these Black females in technology opened the eyes of others who then advocated on their behalf within rooms they had not yet been allowed to enter. Most times, those individuals looking out on their behalf were also Black females. It is common for individuals to help those who mirror their outer image; unfortunately, there are not currently enough Black females in tech to develop and bring up the career chain. As mentioned previously, just 25% of those employed in tech are women, with just 3% of that population representing the lowest paying jobs in the industry filled by Black women, which does not represent leadership roles (Ashcraft et al., 2016; Daley, 2021). Black women comprise a low percentage of U.S. Private sector executives (see Figure 4). *Fatema* stated that Black females in tech should remain focused, diligently, and steadfast: "make yourself Googleable, and have the attitude no matter where you are in your career that there is always someone else that you could be pulling up then you won't be so lonely at the top."

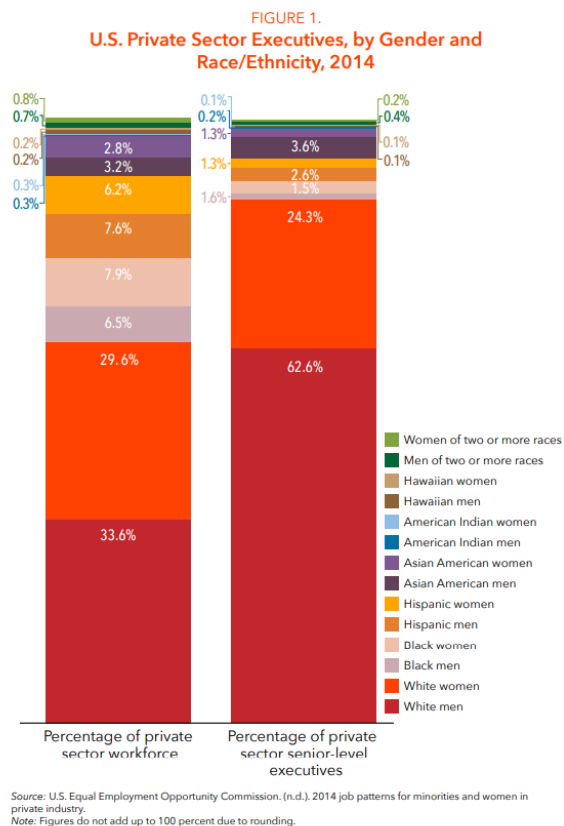


Fig. 4. U.S. private sector executives. From “Barriers and Bias: The Status of Women in Leadership,” by AAUW, 2016, p. 8. Copyright 2016 by AAUW.

Technology culture is disseminating an environment that (a) does not support Black female technology leaders, (b) isolates and creates racially and White-male only biased leadership disparities and challenges, and (c) placing limitations to how many Black females have a thriving and rewarding career that includes upward economic mobility in the vastly growing technology world. Tech industry leaders are responsible for providing gender and racially diverse environments that is mentally welcoming for people of all races and genders. However, this study showed that technology leadership is central to why participants rarely see another Black female leader in the technology arena. The tech giant’s leadership and industry structure demonstrate that White men have the authority and power that control all aspects of

technology in the United States. Ultimately, technology leaders are responsible for promulgating the experiences of racial isolation, gender isolation, and bias experienced by Black females in technology.

Implications

To develop organizational policies and procedures, a rigorous understanding and analysis that supports building positive executive-level leadership experiences and opportunities for Black females in technology is required. Tech corporations should provide empowering environmental circumstances and inclusion for upward career mobility with underpinning approaches for emotional and mental well-being. Furthermore, tech corporations should include hiring initiatives focused on getting more Black females in tech and at leadership levels across the tech spectrum. The judgement of one's behavior and self-monitoring play a critical role for leadership success, performance, productivity and high-level achievements across all levels of the tech culture. Due to the complexity and closed application of the White-male-dominated tech industry, the internal perspective is necessary to fully comprehend how the industry functions. It is necessary to study the most recent tech hires of Black female tech leaders to have the best understanding of current culture and leadership environment. Participants in this study went into the field of technology with ambitions, high-level career intentions, and aspirations. Participants persisted in the tech industry and still face racial and gender bias, isolation, a hypermasculine workplace, loneliness, and rarely if ever see another Black female in their work environment, especially at the leadership level. The participants represent some of the few who did not leave the tech arena; so many other Black females left the tech industry after suffering from the effects of a diminished capacity, fear in the workplace, racial quarantine, lack of advancing their career, sexism, and subjection to a consistent lower pay scale than their White male colleagues. Racial

and gender inequality, discrimination, and gender-based mental and emotional harassment are all characteristic of a ruling White authoritative hypermasculine technology culture, which cannot be permitted or condoned. Beyond academic research, the technology industry has a duty to design policy and regulations for current Black female technology leaders and future Black females. Right now, the participants in this study face daily environmental battles that challenge their leadership, self-efficacy, mental and emotional wellness, and self-judgement. This condition forces participants to consistently monitor themselves to harness their behavior to appease others who (a) do not have the willingness to understand or have the knowledge of their lived experiences or (b) who may give them “the angry Black women stereotype” (Asare, 2019). By designing new policies and regulations the tech industry can create a culturally divergent gender unbiased atmosphere that promotes mental wellness that enhances productivity, a catalyst of practice for tech culture diversity that is reflective of the U.S. population. This act would result in improving and uplifting Black women, women of color, and the overall population of women in tech. This study highlights the need to understand self-efficacy awareness of Black female technology leaders on multiple levels, including the hiring process, inclusion practices, pay scale, performance scale, leadership involvement, family influence, cultural influence, and the impact of self-efficacy awareness of the Black females who stay as well as those who leave the industry. Exposing different angles of Black female’s self-efficacy awareness can aid in developing policies that have beneficial and impactful positive outcomes for the overall well-being and sustainability of tech culture. The results of this study reach across many academic fields, including organization and leadership, business management, psychology, social justice, sociology, environmental studies, law, ethics, gender studies, ethnic studies, and public policy.

Recommendations

Although researchers have addressed the social cognitive theory of self-regulation quantitatively and qualitatively, this study is the first to use a theoretical approach to understand the experiences of Black female technology leaders' self-efficacy awareness through their lived experiences from within the workplace environment and its culture. The study yielded several findings that result in a more thorough understanding of the Black female technology leader's experience. Several recommendations are offered for practice and future research.

Recommendations for Practice

The tech industry relies heavily on leaders who bring new ideas instilled with an acute acumen and creativity to carry out the industry's mission and capture market shares for control and authority. This level of control, authority, and power has been consistently held in the rule of White men, making few exceptions for people of color. As a result, Black females are placed at the bottom end of access, career, and opportunities in tech, creating economic, social, and educational disparities. Although the United States is becoming more diverse, this is not reflected in the work environment of technology. It remains important for the tech industry to capture the Black dollar, the Black economy, and Black culture to grow in wealth; however, the industry set its limitations at hiring Black females. This culture creates high levels of duress, and economic distress for Black female tech leaders, which directly correlates to having their mental, emotional, and financial control commandeered just to stay in the tech industry. This study has shown that the technology industry has isolated and excluded Black females from the industry, especially at prestigious leadership levels that come with significantly increased incomes. Furthermore, the tech industry has created an environment that promulgates "othering" and the hiring practice of "you need to look as White as me." These circumstances within the tech

environment do not increase upward career mobility and leadership opportunities for Black females in tech; too many Black females cannot sustain the inequality and incongruity and leave to find a more harmonious career. Based on the results of this study, it is recommended that the technology industry develop sustainable, transformational, and impactful internal practices, guidelines, and initiatives that address such issues in tech nonprofits, independent organizations, corporate entities, and state and federal agencies. This researcher recommends that an organizational tech department or entity is used as an experimental group in which strategies that support, encourage, promote, and elevate Black female technology leader's self-efficacy awareness can be devised, developed, implemented, and sustained by representatives of the population. Members of the experimental group can be interviewed periodically to fully evaluate the process. Also, programs that have been implemented to support the inclusion of Black females should be evaluated with measures that state the internal organizational issues and show what progress has been made on understanding at a cultural level. Interviews and reports would provide an actionable checklist and increase awareness of the needs and program objectives for establishing measures and outcomes that lead to transformative change. The tech industry has a historical inconsistency with addressing the environmental workplace needs and opportunities for White women, women of color, and for this studies purpose and population, Black women. With such low numbers of Black female technology leaders within higher executive leadership positions in tech, no measurable quantifiable data are available for collection, making it quite difficult to gauge any improvements. These observations and assessment procedures are crucial to making decisive program designs for a best practice approach that supports, empowers, and increases positive self-efficacy awareness and experiences for Black female technology leaders.

Recommendations for Future Research

An area of future research is qualitative inquiry on Black male technology leaders or men of color and their experiences in technology. The focus of this study was on Black female technology leaders and did not include Black men due to the vastly different factors affecting them and their experienced challenges. This area is understudied and needs to be explored to better understand how Black men are experiencing self-efficacy awareness within the core culture of technology and how this may affect leadership and career advancement for existing Black men in tech as well as aspiring Black male technology leaders. Such a study would be informative and illuminating regarding (a) the influence of gender and racial bias in the White male hypermasculine culture and (b) how different Black populations are affected for definitively dissimilar reasons.

The convolution of the self-efficacy awareness among LGBTQIA+ community technology leaders should also be explored. It is especially important to further examine how divergence from traditional gender and sexual preferences plays a role in instigating negative experiences surrounding self-efficacy awareness in the current White-dominated world. A focus on White hypermasculinity and White heteronormative ideals is increasingly relevant because the tech industry has been under fire for ethnic, racial, and gender technology profiling software and facial recognition technology that disparages non-White male communities.

Last, a future study on self-efficacy awareness among women of color who depart and withdraw from tech as an employee and become tech entrepreneurs would highlight the unknown effects on those who feel coerced or pushed out of the tech industry. Such a study would distinguish the contributing factors that create this phenomenon and illuminate a potential

pathway for others. Further support may be needed to link the systemic core culture of isolation and disparities to non-White female technology leaders.

Concluding Thoughts

This dissertation aimed to investigate the self-efficacy awareness of Black female technology leaders within their workplace environment. The results were heartbreaking, upsetting, enlightening, and motivating, and as someone who experienced gender and racial bias personally in the workplace, not surprising. The ability for these Black females to come forward and speak about their experiences with such strength, power, and transparency contributed to a body of research that will change the future for Black females in technology. The study's secondary aim—to understand participants' past experiences that connected and developed their leadership pathway and gave acknowledgement and voice to their journey—was also accomplished.

This study contributes to a limited qualitative area of research and adds research from a new point of view that has yet to be published in literature. The growing body of literature that adds to understanding how self-efficacy awareness and one's lived experiences of mental, emotional, racial, and social isolation create a complex and difficult environment supports the need and advocacy for change in the technology atmosphere. Although refashioning is arduous, multiplex, and takes time to implement, it must be enacted by the tech society to institute a new culture that benefits all. As *Rhianna* stated, “approach things from a very human people centric mindset by simply recognizing that there is someone on the other end that has a lived experience that may not be like mine, that I'm eager to hear about.”

Participants' desire to be employed in the tech industry came from a burning passion to do work that is creative, innovative, and develops life changing moments for various

populations, including them and their families. These females are strong, self-empowered and highly regard that they are Black women. Black women in America must undergo work atmospheres of disharmony, emotional imbalance, and isolation with too many inequalities, especially within the tech industry's \$9,000,000,000,000 sector. The technology industry can afford to do better and cannot afford not to do so due to expanding cultural awareness. Although emotionally and mentally challenged, these spirited, influential, and intellectually driven Black female technology leaders are creating innovative pathways for a diverse technology environment. The participants for this study stated feeling relief, distress, joy, and purpose through speaking with transparent anonymity to provide insight on behalf of some Black females' experiences in the high-dollar value technology environment.

Devanur (2021) listed the ten industries in or rising to be part of the trillion-dollar revenue club: technology; healthcare; automotive; sustainable energy; internet; retail; agriculture; space exploration; digital hospitality; and real estate. Several of these industries have a minuscule quantity, if any, of low paying "housekeeping" positions traditionally saved to be filled by Black women, which sheds light for a need of investigation into the future comings of monopolized industries where once again, Black women will not be invited or accepted in. To build up Black women's self-efficacy right fully earned high-level income and opportunities must be established. Some initial steps through preventive measures must be developed and undertaken in these trillion-dollar industries to include 1) providing mentors that help Black women chart innovative career power-pathways, 2) implementation of training programs with people representative of diverse populations and backgrounds, and for the purposes of this study Black women with direct segues to employment into these high-dollar fields, and 3) positioning Black female leadership to be in "The Room Where It Happens" (Miranda, 2015).

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APPENDIX A

INTERVIEW QUESTIONS

- 1) Describe your overall experiences as a Black female in the technology work environment?
 - a) What have been your greatest successes?
 - b) What have been your greatest obstacles?
- 2) Describe the specific strategies and/or tools you have used to navigate challenges in the work environment?
- 3) Describe the specific strategies you use to control your emotions to be your most effective and productive in the technology work environment?
- 4) What are the top five beliefs you have about yourself that keep you mentally strong and self-empowered?
- 5) What are the top five thoughts that influence how you think about yourself?
- 6) Describe your behavior in the work environment that creates achievement?
- 7) Describe your behavior when you feel you are approachable?
- 8) Whom have you relied on for support or mentorship in the workplace? Describe those relationships? Describe the strategy you used to find mentorship?
- 9) What recommendations can you offer to aspiring Black female technology leaders, based upon your experiences?
- 10) What are the top five action steps for an aspiring Black female technology leader to implement your recommendations?

APPENDIX B

PROSPECTIVE PARTICIPANT LETTER

Prospective Participant

Investigating the Self-Efficacy Awareness of Black Female Technology Leaders

Dear Prospective Participant,

By way of introduction, I am Marie Roberts De La Parra, a doctoral student at the University of San Francisco. For my dissertation research area, I have chosen a topic of importance to me as a Black female. I have developed the concern through my executive leadership coaching practice that Black females have different opportunity options and income in technology than others in the same arena. As I have researched this topic, I find that there have not been recent studies conducted by persons or organizations. For this reason, and to spotlight concerns of this demographic, I am conducting this study to look into the topic.

I ask that you would consent to be part of my study. Your participation would consist of allowing me to interview you about your experiences and perceptions of your leadership and workplace environment in a technology leadership role. There are no right or wrong answers, and the projected interview period will take approximately 60-90 minutes. The video and audio recorded interviews will be conducted by Zoom at your discretion. I would need to perform these interviews in January 2021 through March 2021, organizing all the answers compiled and analyzing the data for a finalized report on the topic.

I would like to assure you that your anonymity and privacy throughout this process will be protected. A unique identification code known to me will be assigned to each participant that will not be associated with any identifiable markers or identifiable demographic information to ensure masking your identity. Until the data is analyzed, it will be kept in a password-protected computer and container under my control at all times. Once the study is complete, all source documentation will be destroyed.

Because of the study's importance, the number of participants in the study will allow for the findings' strength and validity; I ask that you would solicit persons in the demographic known by you also to participate in addition to your participation. I ask that you would forward this letter to persons known to you and ask them to respond to the email address established for this study, ibfselfea@gmail.com, as soon as possible so that I may reach out to them to schedule an interview. Please feel free to contact me at this email address at any time with your questions or concerns about the research. It is hoped that this study will be a substructure for furthering work to improve opportunities for current and future Black female technology leaders.

Thank you in advance for your consideration and participation.

I appreciate you,

Marie Roberts De La Parra

APPENDIX C

VALIDATION PANEL REQUEST

January 22, 2021

Dear

This letter serves to confirm your agreement to serve on the Validation Panel for the interview questions I have created for my dissertation research in the area of Investigating the Self-Efficacy Awareness of Black Female Technology Leaders. This research is needed, as the statistical data shows that women hold 20% of the jobs in technology, Black women share just 3% of those positions, and in leadership positions, the numbers are too low to quantify.

Attached is the rubric for the interviewee topic question validation that you can use to evaluate the questions I have developed for this research study. As previously discussed, the questions have been structured to have a high probability of eliciting honest and transparent answers from the participants in the research study. Black female technology leaders have limitations placed on career opportunities, higher-level advancement, and income disparities that influence self-efficacy. For this reason, they may be apprehensive in answering direct questions regarding the matter.

I would appreciate it if you would return the attached Interview Validation Rubric to me by Wednesday, December 30, 2020, in the self-addressed envelope or via email return ibfselfea@gmail.com. Thank you in advance for your assistance in validating the questions for my research study. I value your knowledge, expertise, and experience in the area of Black female technology leaders.

All the best.

I appreciate you,

Marie Roberts De La Parra

3 Attachments:

1. Purpose of the Study
2. Evaluation Rubric

Interview Questions

APPENDIX D

CONSENT TO PARTICIPATE

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Below is a description of the research procedures and an explanation of your rights as a research participant. You should read this information carefully. If you agree to participate, you will sign in the space provided to indicate that you have read and understand the information on this consent form. You are entitled to and will receive a copy of this form.

You have been asked to participate in a research study conducted by Marie Roberts De La Parra, a graduate student in the Department of Organization & Leadership at the University of San Francisco. This faculty supervisor for this study is Dr. Patricia Mitchell, a professor in the Department of Organization & Leadership at the University of San Francisco.

WHAT THE STUDY IS ABOUT:

The purpose of this research study is to investigate and uncover how Black female technology leaders describe the self-efficacy/ self-beliefs conditions, effectiveness, and awareness required in their leadership roles in their work environment by discussing their lived experiences through an interview. This study has two primary objectives. The first objective will examine the experienced past living environment of 10 Black female technology leaders, focusing on how their authentic, individualized process determined their leadership pathway.

WHAT WE WILL ASK YOU TO DO:

During this study, the following will happen. As a participant in this research study, you will be agreeing to be interviewed by the researcher. You will provide and share insight into your experience as a Black female technology leader, your role as a leader, your beliefs about your leadership. You will be asked to discuss the pathway to obtaining your leadership role to include your influences along the way from your childhood to your current leadership position. Additionally, you will be asked to be transparent about any obstacles and challenges you have faced and if and how you overcame them.

DURATION AND LOCATION OF THE STUDY:

Your participation in this study will involve one session lasting one hour; two thirty-minute sessions once a week for two weeks to follow up and clarify responses. The study will take place virtually by Zoom meeting.

POTENTIAL RISKS AND DISCOMFORTS:

The research procedures described above may involve the following risks and discomfort: emotional or cognitive pain that may negatively affect your mood. The likelihood of this encounter is low. If you wish, you may choose to withdraw your consent and discontinue your participation at any time during the study without penalty.

VIDEO AND AUDIORECORDINGS: The interview will be done by Zoom audio and video recording to capture each detail of the interview only to transcribe the audio in the participants own words. It is currently not possible to provide an in person recording option due to COVID19. The video will provide security for the participant ensuring that they are speaking to the intended researcher. The video recording with audio will be kept secure by the researcher. The researcher will be the only individual accessing and viewing the video and audio recording located on a password protected computer only known to the researcher. The transcription will be archived, securely maintained, and stored upon completion of the research for up to 3-years. When the 3-year period has expired the video, audio recording, and transcription will be destroyed.

BENEFITS:

You will receive no direct benefit from your participation in this study; however, others' possible benefits include support in the work environment with self-belief and achieving in the workspace. The expected benefits to society and scientific knowledge will 1) support future Black female technology leaders, 2) expand research and awareness of the needs of Black female technology leaders needs in the workspace, 3) provide a future guide for designing a curriculum focused on building the individuals self-belief about what they can achieve as a Black female technology leader, 4) and lastly reduce income disparities that harm Black female technology leaders.

PRIVACY/CONFIDENTIALITY:

(NOTE: *Anonymity* means that no identifying information such as name or student ID number is collected, so the privacy of participants is assured. *Confidentiality* means that the researcher (or perhaps the instructor) will have a record of who participated, but the data will be kept private. Because you will not be providing any information that can uniquely identify you, such as your name, address, or work/employer information or ID number, the data you provide will be anonymous.

COMPENSATION/PAYMENT FOR PARTICIPATION:

There is no payment or other form of compensation for your participation in this study.

VOLUNTARY NATURE OF THE STUDY:

Your participation is voluntary, and you may refuse to participate without penalty. Furthermore, you may skip any questions or tasks that make you uncomfortable and may discontinue your participation at any time without penalty.

OFFER TO ANSWER QUESTIONS:

Please ask any questions you have now. If you have questions later, you should contact the principal investigator: Dr. Patricia Mitchell, at (707)208-7726 or mitchell@usfca.edu. If you have questions or concerns about your rights as a participant in this study, you may contact the University of San Francisco Institutional Review Board at IRBPHS@usfca.edu.

I HAVE READ THE ABOVE INFORMATION. ANY QUESTIONS I HAVE ASKED HAVE BEEN ANSWERED. I AGREE TO PARTICIPATE IN THIS RESEARCH PROJECT, AND I WILL RECEIVE A COPY OF THIS CONSENT FORM.

PARTICIPANT'S SIGNATURE

DATE

ATTACHMENT 1: PURPOSE OF THE STUDY

The purpose of the study is to investigate Black female technology leader's self-efficacy awareness in their leadership and work environment through their lived experiences. The study will solicit perceptions from current Black female technology leaders in a leadership position at various corporate technology entities and organizations based in the United States. Previous research studies examine specific contributing factors affecting the leadership self-efficacy of Black females. These Black female leaders describe problems with discriminatory practices, toxic masculinity, and non-acceptance into the environment (Harvey, 2007; Johnson, 2012).

There continues to be a significant lack of women in executive leadership and management positions more than ever (Offerman, 2018; Kelly, 1998; Kim, 2016; Johnson, 2012). Global entities such as Amazon, Google, Facebook, Apple, and Microsoft have approximately a 34.4% labor force of women with just 26% in computing (Daley, 2021). Additional, issues of concern for women analyzed by Daley include disrespect in the workplace, personal safety, lack of promotion, and the lack of entry-level opportunities for women.

The purpose of this qualitative study is to investigate and uncover how Black female technology leaders describe their self-efficacy conditions, effectiveness, and awareness required in their leadership roles by analyzing their lived experiences. An examination of 10 Black female leaders' past environment will focus on how their exact process determined their leadership pathway.

ATTACHMENT 2: RESEARCH QUESTIONS

- 1) What experiences in the work environment have impacted the self-efficacy of Black female technology leaders?
 - a) What experiences have positively affected self-efficacy?
 - b) What experiences have negatively affected self-efficacy?
- 2) What experiences with self-efficacy tools have Black female technology leaders found useful to address challenges in the work environment?
- 3) What recommendations do current Black female technology leaders have for aspiring Black female technology leaders?

ATTACHMENT 3: QUESTION SCORING KEY

Criteria	Operational Definitions	Score
Clarity	Questions are related to research topic	
Wording	Questions are concise	
	Questions are presented in a positive positioning	
Balance	Questions are unbiased	
	Questions do not direct, lead, or suggest participant to an answer	
Use of Term “self-efficacy” Warranted	The use of jargon is at a minimum	
Relationship to Problem	The question will allow the researcher to answer the research question	
	The question will allow the researcher to achieve the purpose of the study	

Scoring Key:

1. Somewhat Effective (some modification needed)
2. Effective (no modification needed but could be improved with minor changes)
3. Highly Effective (no modifications needed)