The influence of gender, and race/ethnicity on advancement in information technology (IT)

Kimberly McGee, PhD

Fielding Graduate University, School of Leadership Studies, Santa Barbara, CA 93105-3814, USA

ARTICLE INFO

ABSTRACT

With increased attention paid to the lack of diversity in U.S. technology firms, little attention is paid to women already in the technology workforce who aspire to senior leadership roles. This research study focused on understanding the experiences of African American/black, Asian American, European American/white, and Hispanic American/Latina women who advanced from technical/operational IT roles to senior IT executive (SITE) roles in corporate America. Previous research solely focused on gender, race, or ethnicity provided an insufficient and limited description of women's advancement journey. Rather than treat gender and race/ethnicity as mutually exclusive categories of experience and analysis, this study approached the topic from a gender intersectionality perspective and used the individual differences theory of gender and IT as an analytical lens. Specifically, the study examined women's career progression in a more nuanced manner—observing gender *within* race or ethnic group—which provided greater insight into the participants' advancement journey.

The intent of this study was to understand how individual and organizational factors influenced each participant's career progression and what role, if any, gender and race/ethnicity played in the journey.

As a result of the analysis, six themes emerged: Pathways to the SITE Role; Informal Networks; Bias; Credibility and Legitimacy; Support; and Technical Skills. Issues of gender and race/ethnicity permeated most of the factors and influenced whether the factors helped or hindered.

Although some findings support existing research on women's career barriers, the intent was not to generalize the findings to all women. Rather, the study's results demonstrate that racial and ethnic variations among the women in addition to a variety of other factors contribute to different career progression experiences.

1. Introduction

Silicon Valley high-tech firms made front-page news in the summer of 2014 when several technology companies including Google, Facebook, and Microsoft publicly disclosed the demographic makeup of their entire workforce. The disclosures were momentous because, with a few exceptions, technology companies do not disclose their workforce demographics publicly. For some, the disclosures were predictable because they confirmed a widely-known phenomenon—the U.S. technology workforce is predominantly male and white and increasingly Asian.

The disclosures sparked debates about the lack of diversity in the tech sector, generated public pressure for data transparency, and increased analysis and reporting of IT workforce diversity statistics. Why all the fuss? Perhaps it is because the United States is facing a skills shortage. The U.S. Bureau of Labor Statistics anticipates a 13% increase (about 9 million jobs) in science, technology,

engineering, and mathematics (STEM) occupations between 2012 and 2022, with technology occupations among the fastest growing (Vilorio, 2014). The implication is that there are not enough information technology workers to fill this demand (Casey, 2012; Mansfield, Welton, & Grogan, 2014). Perhaps it is because industry research shows that a diverse and inclusive workforce, especially in IT, correlates to increased innovation, greater creativity, and higher revenue and profits (Catalyst, 2013; Hunt, Layton, & Prince, 2014; Phillips, 2014; Scott, Kapor Klien, & Onovakpuri, 2017; Thomas, Dougherty, Strand, Nayar, & Janani, 2016). Nonetheless, IT workforce statistics suggest that large segments of the U.S. population, namely women and people of color, remain underutilized.

In the aftermath of the disclosures, companies committed millions of dollars per year to initiatives meant to increase workforce diversity, mostly focused on recruitment. Despite the increased focus, diversity numbers remain stagnant (e.g., Donnelly, 2017; Gee & Peck, 2017; Guynn, 2017b; Kendall, 2017), allegations of gender discrimination and sexual harassment have increased (e.g., Dickey, 2017; Fiegerman, 2017; Simon-Lewis, 2017), and retention and advancement receive little attention.

Workforce demographics and labor statistics show that rather than an unusual occurrence, women's underrepresentation, particularly in IT, is widespread, complex, and persistent. According to the National Center for Women and Information Technology (2015), women represented 25% of the U.S. IT workforce in 2015; of which 3%, 5%, and 1% are African American, Asian American, and Hispanic American/Latina, respectively. There is also considerable underrepresentation of women in senior leadership roles in IT. The Nash (2016) reports that women represent 9% of global senior IT leadership. Ashcraft and Blithe (2010) find that women account for 9% of U.S. executive and senior management IT positions. Furthermore, women of color (WOC)[1] are a rarity at the executive IT level.

Although academic research continues to investigate the dearth of women in SITE roles, researchers tend to depict women as a homogeneous group and portray the experiences of white women as prototypical of all women. Besides ignoring differences in experience among women, this tendency makes it difficult to uncover nuances that could provide a richer understanding of women's underrepresentation in SITE roles. Additionally, research in this area tends to lump people of color into one group, identified as "minority". Using these assumptions as the basis for studies causes study results to aggregate or universalize the experiences of people of color (POC) and overlook the collective and individual experiences of WOC.

To complicate the issue, advancement in IT is not straightforward. Some researchers suggest the representation of women and POC at executive levels will increase as their numbers increase in the broader IT workforce. The assumption is that employees at lower levels naturally advance up the corporate ladder (Kanter, 1977; Kilian, Hukai, & McCarty, 2005). However, few studies take into account that technical/operational IT positions typically do not provide a career path to senior executive-level IT roles. Research indicates that a strong technical background, for example, may not align with skills perceived necessary for executive-level positions in IT (Carter, Grover, & Thatcher, 2011). Consequently, individuals in technical/operational IT roles may not be invited to participate in the pool from which executive-level IT people are chosen, mentored, or developed. Assuming that advancement in IT is a natural result of time in grade also ignores how IT culture and gender stereotypes affect advancement.

The purpose of this qualitative study was to investigate the experiences of African American/black, Asian American, European American/white, and Hispanic American/Latina women who advanced from technical/operational positions to executive-level roles in IT. Though women's underrepresentation in the IT workforce is a global issue, this study focused on women in the United States IT workforce. The study's intent was to understand how individual and organizational factors helped and hindered the women's advancement. Though relevant, the study did not address issues within the educational system that contribute to the lack of participation and representation of females and students of color in STEM disciplines. Rather, the research focused on women in SITE roles in corporate America and addressed the impact of perceived individual and organizational factors on advancement. As such, the core questions that guided this study were:

- What perceived individual and organizational factors help and hinder advancement?
- What role, if any, did gender and race/ethnicity play in the advancement journey?

2. Literature review

Because little is known about women in SITE roles in corporate America, understanding them as a particular category of executive involves connecting several distinct scholarly texts. The IT profession and field cannot be understood without consideration of its historical gender and race-segregated workforce. Therefore, a historical overview of women in computing and the development of SITE roles underpin the literature review. Because the IT profession and SITE roles emerged within corporate environments, the review also looks at underlying cultural assumptions found in corporate and corporate IT cultures. The intent is to highlight how beliefs about women found in the broader society and the IT profession continues to shape cultures and norms and affect women's career development and advancement opportunities. This historical overview and organizational culture literature lay the foundation for understanding women's advancement barriers. The advancement literature reviewed examines how race/ethnicity and gender create qualitatively different perceptions and experiences of factors commonly believed to impede the advancement of women into senior executive roles. These pieces of literature construct the framework for studying women who advanced from technical/operational roles in IT to SITE roles. The bulk of research focused on the underrepresentation of women in senior executive and SITE roles emphasizes gender-related issues. However, this review departs from such conventions because it makes a concerted effort to illuminate how gender and race or ethnicity impact advancement.

---

[1] For the purpose of this research, women of color included women who identify as African American/black, Asian American, or Hispanic American/Latina