AN EXPLORATION OF THE BENEFITS OF COLLEGE STEM BRIDGE AND RETENTION PROGRAMS FOR HIGH ACHIEVING AFRICAN-AMERICAN MEN

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Abstract

The research design was shaped as a result of the chosen methodology, which was interpretive phenomenological analysis. I was back and forth between narrative inquiry and IPA for a long time but wanted to focus on capturing the lived experiences across subjects from similar backgrounds who experienced the same phenomenon, which in this case was a college STEM bridge and retention program, known as IGNITE throughout the research study. This summer bridge program was taken the summer prior to enrollment in a bachelor’s degree at this private four-year research institution located in New England. Originally, the goal was to recruit from a STEM retention program or post baccalaureate program, but I was unable to recruit participants successfully over a course of four months, so I had to go with the second option as previously agreed upon by my dissertation chair Dr. Reiss Medwed.

Participants needed to be African American men who completed the IGNITE program, employed full-time or enrolled in school full time. This was also a modification made since the focus was on post-baccalaureate achievements and milestones, where full-time enrollment in graduate school should be considered as such. They also needed to be considered high-achieving, low income, and first-generation college students between the ages of 25-45. The data analysis revealed 11 emergent themes, first coding transcribed, and video recorded interviews in Dedoose using IPA protocols allowing for the themes to present themselves.

The researcher discussed the IGNITE program with the three participants (T’Challa, W’Kabi, and Zuri), and themes emerged around programmatic challenges and assessments and subsequent improvements. Two participants (T’Challa and W’Kabi) experienced challenges with housing due to taking advantage of study abroad opportunities and not meeting institutional
deadlines as a result. This forced them to find their own housing and at least one subject (T’Challa) was left homeless, triggering traumatic memories of being homeless for a period of time as a child. Both T’Challa and W’Kabi experienced challenges with the program administrators throughout their time in the IGNITE program and throughout their academic experience. They also seemed to assume the role of “program poster examples” to donors, who they were required to meet and share their stories with. All three participants spoke to the challenges with the limited time they had during the IGNITE summer program given how structured it was. The good news is that the program made some positive changes that made the third subject’s experience (Zuri) better, being asked to create a five-year plan and present it to his personal board of advisors and was able to leverage donors for experiential learning opportunities and not just to showcase the program. There were also new faculty and staff members of color hired to support the program, as the participant was reflecting on his experience that varied slightly from the first two participants.

All participants benefited greatly from their experiential learning opportunities and all participants completed more than one experiential learning opportunity, including not just co-ops or internships but service learning and working or studying abroad. This ability to try stuff out really seemed to help them clarify their career pathways and gave them more confidence and broadened their networks as they completed these.

All participants cited the IGNITE scholarship as helpful in terms of resource scarcity and creating a safe environment for them to “take risks” and try learning opportunities out. All coming from low income and first-generation backgrounds, this was a huge relief. Some unfortunately did experience triggers of resource scarcity (such as being temporarily homeless) that had the potential to derail the participants.
Mentors – whether informal or not – had the anticipated positive impact across all participants. The most important attribute here is that the mentors were people of color who were also cited as empathizing with the participants’ upbringing and needs.

The most surprising finding was that extracurricular activities had a positive impact across all participants, as they cited feelings of isolation at a predominantly white institution and how the extracurricular activities – all of which put each participant in touch with other students of color through culture clubs, black fraternities, etc. – severely reduced these feelings of isolation. In fact, these opportunities led to additional apprenticeship opportunities and experiential learning opportunities due to their expanding network with people of color.

In summation, research findings indicated that a portfolio of experiential learning opportunities was beneficial for clarifying desired career pathway participation, and successful post baccalaureate careers as a result.
Chapter One: Introduction

Statement of the Problem

African-Americans continue to experience high rates of educational deficits and lower rates of college graduation relative to Whites (Daire, LaMothe, and Fuller, 2007). Minority populations, specifically African-American first-generation low-income students, have been traditionally underrepresented among college students and graduates. The highest attainment rates for minority populations is for Asians and Pacific Islanders at 61.2 percent, followed by Whites at 45.7 percent, African Americans at 29.3 percent, American Indians at 23.9 percent, and Hispanics at 21.3 percent (Lumina Foundation, 2017). Lacking related experience, many highly talented graduates in sciences, liberal arts, and humanities are left without a clear path to a career. About 1.5 million, or 53.6 percent, of bachelor’s degree-holders under the age of 25 last year were jobless or unemployed, which is the highest share in the last 11 years (Yen, 2012). These students are forced to take positions outside of their fields and are challenged to find ways to use their newly acquired knowledge and skills to enter the job market (Sum, 2012).

There are numerous programs focused on the retention and persistence of low-income high-achieving African-American students in STEM, specifically college bridge and retention programs. However, not as many retention programs exist at the post-baccalaureate level, and there are limited studies capturing how these programs have improved the diversity and within the employer pipeline—STEM industries in particular. A deeper exploration of these college STEM bridge and retention programs and the impact they have on African-American men may reveal potential solutions to increase employment rates for men of color, specifically among high-achieving first-generation African-American men.
Post-baccalaureate programs usually start after an undergraduate degree and are designed to support the transition from an undergraduate to a professional school such as medical school (Association of American Medical Colleges (2015). Programs range from one to three years, can be full-time or part time, and can be degree granting (such as a master’s) or non-degree granting (a certificate). A post-baccalaureate cooperative education program would inject an experiential component that could provide the student with gentle entry experience into STEM fields, and a paid salary throughout in addition to working towards the completion of their Master’s degree or professional certificate program. Bridge programs on the other hand are designed to support students from the conclusion of their K-12 education to their first term enrollment in their baccalaureate degree program. Some of these programs have support structures built throughout their entire baccalaureate experience as well.

**Rationale and Significance**

A post-baccalaureate cooperative educational model has the potential to be a significant contribution to the community college system, higher education, and STEM employers by serving as a potential solution to a significant industry problem. The model would first benefit community colleges by providing a clearer career pathway to community college STEM transfer students. Not only are community college students usually low-income, first-generation students who work full-time or part-time, but they are also disproportionately students of color in comparison to postsecondary education (National Research Council and National Academy of Engineering, 2012). Second, the model would benefit the relevant institution by providing continued innovation and leadership in STEM education and by improving employer placement rates especially in continuing education sectors (Zoloth, 2012). Third, this model would benefit STEM employers by providing them with strong career-ready candidates with a solid foundation and skills for STEM
fields, and cost-effective hiring (Zoloth, 2012). Finally, this model would benefit the students by providing them with a chance to explore new STEM fields in a safe place, solidify their career pathway, and in a protected environment that has the potential to provide them with a launch pad suite of services (Zoloth, 2012). These services include health insurance, career support from their institution, a salary from their co-op employer, and a mentor or career coach since they would still be considered full-time students (Zoloth, 2012). Those who have the highest rates of unemployment include men, African Americans, Hispanics, teenagers, and workers in construction and manufacturing (Bausmith and France, 2012). Therefore, it is of no surprise why future income and status has a greater influence on the career choice of African American college students than on the career choice of White college students (Daire, LaMothe, & Fuller, 2007, p. 277). According to Parks-Yancy (2006), “although Blacks have made some inroads in managerial and professional occupations, in manufacturing, in the civil service, and in other fields, they still have more difficulty in obtaining employment and comparable career outcomes” (p. 541). This is due to the fact that the social ties are weaker, fewer and far between as opposed to the ones that Whites have (Parks-Yancy, 2006). College STEM bridge and retention programs may provide first-generation African American students with the launching pad and resources needed to better leverage these social ties and ensure a more promising career path.

**Research Problem and Research Question**

African Americans represent the lowest shares of the STEM workforce at 3% according the 2011 US Department of Commerce report. According to Strayhorn (2010), African Americans are nonexistent from some STEM fields such as the “biological sciences (less than 3 percent), computer science (0.7 percent), and astronomy (0 percent)” (p. 86). This may be in part due to the culture of STEM, which starts in the classroom. Traditionally, grading on a curve and the use of
courses intended to “weed out” students have been viewed as academically rigorous and necessary for success in STEM professions (National Research Council and National Academy of Engineering, 2012). Researchers have now highlighted that those tactics are counterproductive and actually further isolate students, specifically at-risk populations in STEM such as women and minorities (National Research Council and National Academy of Engineering, 2012). This trend continues post-baccalaureate, since less than half of STEM majors continue on to from the baccalaureate level to enter a STEM graduate program or a research or technical career (Strayhorn, 2010). As a result the U.S. global competitiveness is threatened, ultimately reducing national security and forces the United States to look to outside countries to staff highly technical jobs (Strayhorn, 2010).

The purpose of this doctoral thesis was to explore the potential benefits of college STEM bridge and retention programs for high achieving African-American men in STEM. The overall research question guiding this inquiry was to determine what impact these programs have on African-American male employability, specifically in STEM fields. This question was being asked in order to hone in on the employment placement rates of existing college STEM bridge and retention programs and reveal the potential to fill any gaps.

**Deficiency in Evidence Justifies the Research Problem**

Despite countless programs aimed at increasing and diversifying the STEM pipeline, the industry is still seeing limited representation of and retention of African American students. According to National Research Council and National Academy of Engineering (2012), this is due to the fact that despite this long history of calls for cultural change and increased diversity, the changes have only been incremental and thus not enough to make an impact. National Research
Council and National Academy of Engineering (2012) believe that what lies at the core of the problem is the negative racial climate in STEM fields, and until this is changed allowing for diversification no changes will be seen.

It was challenging to find data on the success or lack thereof of college STEM retention programs, and specifically for those geared towards African Americans. Blakely and Broussard (2003) support this claim, not only on the limited literature but also on the limited studies that have been conducted on these programs that do exist geared towards underrepresented minority populations. In fact only two were referenced, which included the Jefferson Medical College study from 1985-1987, and the Brown University study completed in 1991 (Blakely and Broussard, 2003). This deficiency in evidence justified the need for more research on the success of college STEM bridge and retention programs geared towards underrepresented minority populations and specifically African-American men.

Blakely and Broussard (2003) conducted research on the success of the UC Davis School of Medicine Post Baccalaureate Reapplicant Program, serving students who are educationally or financially disadvantaged and likely to return to medically underserved communities. This program achieved an overall placement record of over 80%, with nearly 100% placement in several classes (Blakely and Broussard, 2003). However, “studies and reports of the McNair Program have been limited” (U.S. Department of Education, 2008, p.5). According to the U.S. Department of Education (2008), “among those not in school, 83.8 percent of bachelor’s degree recipients and 93.6 percent of master’s degree recipients reportedly were working. Of the master’s and bachelor’s degree recipients currently in school, the majority, 76.6 percent and 62.6 percent respectively, indicated that they were working” (p. 34). This in conjunction with the points raised by National Research Council and National Academy of Engineering (2012) not only verifies that college
STEM bridge and retention programs have the potential to fulfill an unmet need at a crucial point in a student’s career pathway, but also as a potential opportunity to increase and diversity the STEM employment pipeline.

**Key Definitions**

In addition to African-American and high-achieving, there are numerous additional terms that are cited in this study. This section focuses on definitions, referencing other works as applicable, as a guide for the reader.

**Experiential learning.** There are numerous forms of experiential learning. Experiential learning can be defined as simply as learning by doing (Austin and Rust, 2015). Experiential learning can also be defined as process where knowledge is “obtained or created through the transformation of an experience” (Austin and Rust, 2015, p. 144). A more modern definition of experiential learning is that which is in alignment with the Association for Experiential Education, stating that experiential learning is when “educators purposefully engage with learners in direct experience and focused reflection in order to increase knowledge, develop skills, clarify values, and develop people’s capacity to contribute to their communities” (Austin and Rust, 2015, p. 144).

**Work-based learning.** The emphasis with work-based learning is on learning gained through working, as opposed to work placement or the specific completion of the tasks (Burke, Marks-Maran, Ooms, Webb, and Cooper, 2009). Work-based learning “does not always need to take place at work and has been shown to improve employability” (Burke, Marks-Maran, Ooms, Webb, and Cooper, 2009, p. 17).

**Apprenticeship.** According to Brockmann, Clarke, and Winch (2010), the apprenticeship model allows for qualifications to be developed by social partners, and the apprentice is awarded
(upon successful completion) occupational knowledge and competencies. Some of these social partners may include trade unions or employers (Brockman, Clarke, and Winch, 2010).

**Cooperative education.** The two primary models of cooperative education include classroom-based and work-based learning (Goho and Rew, 2009). The first model is focused on daily school and work activities, and the second rotates time periods by term (quarter or semesters) between paid full-time employment and full-time academic coursework (Goho and Rew, 2009). According to Goho and Rew (2009), “both models also use connecting activities such as co-op coordinator visits to job sites and employer attendance at orientation or selection sessions” (p. 83).

**Internship.** According to the Council for Advancement of Standards in Higher Education, an internship is distinctive from other forms of active learning due to the level of supervision, and self-study requiring the students to learn by doing and reflect on their experiences connecting their internship to learning goals and objectives (O’Neill, 2010). O’Neil (2010) reaffirms that in order for a true internship to take place, there is a feedback loop and a deliberate form of learning and shared responsibility, as well as a healthy balance between learning and contributing, the student, the institution, and the internship location.

**Service learning.** Service learning is a type of experiential learning, that incorporates community service and academic learning, “providing academic benefits and practical experience while also introducing students to the importance of civic engagement” (Coulter-Kern, Coulter-Kern, Schenkel, Walker, and Fogle, 2013, p. 307). Johnson (2013) emphasizes Jacoby’s (1996) definition of service learning and the intentionality around the need to address human and community needs together in a structured format while simultaneously promoting student learning and development.
**Post-baccalaureate Program.** According to the Association of American Medical Colleges (2015), “Post-baccalaureate programs begin after an undergraduate degree and are designed to support the transition from an undergraduate to a professional school such as a medical school” (citation). There is a wide range of post-baccalaureate programs such as pre-medical programs, nursing programs, and teaching certification programs. Programs range from one to three years, can be full-time or part time, and can be degree granting (such as a master’s) or non-degree granting (a certificate).

**African-American.** The subjects in this study that are the primary focus are of African-American descent. According to Agyemag, et al., (2005), the term African-American “refers to a person of African ancestral origins who self identifies or is identified by others as African American” (p. 1016). This definition encompasses African Americans who are for the most part descendants of people brought to America between the 17th and 19th century as slaves (Agyemag et al., 2005). This is in alignment with the US census definition of African American (Agyemag, et al., 2005). This definition is not to be confused with that of North Africans or African Caribbeans (descendants and offspring from the Caribbean islands) (Agyemag, et al., 2005). A potential complication is that someone who identifies with their race or ethnicity may not be aware of their ancestry for a variety of reasons, slavery being one of them. As a result the subject could technically be defined as African Caribbean or North African and may not be aware of it. For the purposes of this study, the subject is African-American if they self-identify as such no matter their ancestral origin.

**High-Achieving.** According to Freeman (1999) high-achievers are individuals who work hard, but attributes that are unique to African-American high-achievers include the fact that they tend to also be first generation college students, can and do often face crises, and are rarely thought
of as being high achievers. As a result they are assumed to need no outside help to adjust, specifically at Predominantly White Institutions, and combined with an increased pressure to perform experience this double dilemma and subsequent isolation (Freeman, 1999). Freeman (1999) identifies mentorship as the one key success factor that helps high-achieving African-American students navigate these waters.

**STEM.** Acronym that stands for Science, Technology, Engineering, and Math.

The purpose of this doctoral thesis was to explore the potential benefits of college STEM retention programs for high achieving African-American men. The overall research question guiding this inquiry was to determine what impact these programs have on African-American male employability.

**Theoretical Framework**

Critical Race Theory (CRT) served as the theoretical framework for this study. The areas of focus for this section include the historical trajectory and evolution of CRT, the individual tenets that make up CRT, white privilege and CRT, critics of CRT, and how CRT is applicable to the research question.

**Critical Race Theory**

Despite the positive impact that higher education has on the larger society, analyses have verified that too few African Americans are provided with access to the socioeconomic advantages associated with obtaining a college degree (Harper, Patton, and Wooden, 2009). This is why we need Critical Race Theory (CRT) to advance a strategy and account for the role of race and racism and work toward the elimination of racism as a larger goal (Solórzano and
Yosso, 2002). CRT can be defined as “a framework or set of basic insights, perspectives, methods, and pedagogy that seeks to identify, analyze, and transform those structural and cultural aspects of education that maintain subordinate and dominant racial positions in and out of the classroom” (Soloranzo and Yosso, 2002, p. 25). The primary focus of CRT is to interrogate how the law recreates and normalizes racism in society (Capper, 2015). The focus of CRT has evolved over the years and expanded to encompass more components, which is why it is important to understand how and why the evolution occurred.

**Historical Trajectory of Critical Race Theory.** CRT scholars have different opinions as to the historical origins of CRT. For example, according to Solórzano and Yosso (2001), the origins of CRT could have stemmed from DuBois’ (1903) work *The Souls of Black Folks* (Capper, 2015). Some believe there is no identifiable date marking the birth of CRT, and that “its foundation is linked to the development of African American thought in the post-civil rights era: the 1970s to the present” (Capper, 2015, p. 793). The primary founders of CRT include Bell, Delgado, and Crenshaw, who “in the early 1980s identified inadequacies of the Critical Legal Studies (CLS) in addressing racism” (Capper, 2015, p. 794). Capper (2015) states that Crenshaw’s contributions to CRT started when enrolled at Harvard Law. Capper (2015) helped organize student protests over the lack of diversity in faculty and curriculum pertaining to race and other forms of diversity. Inspired by Bell’s work, Crenshaw and other scholars “gathered for the first CRT workshop in Madison, Wisconsin, in 1989 where they critiqued not only neoliberal aspects of the law but also CLS for its perpetuation of racism” (Capper, 2015, p. 794). The components or tenets of CRT evolved throughout history, which provide an overview of the key areas of focus and assumptions made by CRT theorist.
Tenets of Critical Race Theory. According to Capper (2015), there are six primary tenets of CRT stemming from the CRT history in law, education, and educational leadership. These tenets stem from seminal authors such as Delgado (1995) but expanded and evolved with contemporary authors who have added to and modernized the tenets over time. Overall no single definition of CRT exists, but the majority of CRT scholars agree on the core seven tenets (Harper et al., 2009).

The first tenet is that racism is institutionalized, a normal part of American society, and part of our social order and culture—making it challenging to get rid of it since it’s part of the American way of living (Ladson-Billings, 1998; Harper et al., 2009; Parsons, Rhodes, and Brown, 2011; Solórzano and Yosso, 2002; Sleeter, 2017). In the context of African-American men working in STEM, it is considered “normal” and “acceptable” to see fewer men of color in this field. So while a white male employed in STEM may say that the reason it is not diverse is because “some people don’t belong in STEM” or “STEM is challenging and requires a specific skill set,” a CRT scholar would say that this norm has been accepted as business and usual and needs to be pulled out at the root in order to serve as a catalyst for change.

The second tenet is that CRT theorists integrate their own experiential knowledge or storytelling which can be used to transform and fight ongoing battles with racism and provides legitimacy to these stories (Ladson-Billings, 1998; Solórzano and Yosso, 2002). Looking at the Revolutionist History, which reexamines America’s historical record and states that it has been reinterpreted as opposed to acknowledging the truth (Harper et al., 2009). By providing people of color with a chance to share their experiences, this is how CRT gives a unique voice and perspective to the lived experiences of people of color (Harper et al., 2009). Sleeter (2017) takes it one step further to say that CRT places more value on stories by people of color that call into
question the viewpoint of the majority. The assumption here is that since dominant ideologies and knowledge systems are based on a White point of view, the concept of racism is either denied or hidden (Sleeter, 2017). Solorzano and Yosso (2002) focus on how CRT “exposes deficit-informed research and methods that silence and distort the experiences of people of color as opposed to looking at their experiences as a source of strength” (p. 26). As a result “CRT theorists assume that those who understand racism best are not its perpetrators but rather those who are routinely victimized by it” (Sleeter, 2017, p. 162). This tenet of experiential knowledge will serve as the primary focus when conducting the research on employed African-American men who have completed college STEM retention programs. CRT theorists look to collect this experiential data by way of “storytelling, family histories, biographies, scenarios, parables, cuentos, testimonies, chronicles, and narratives” (Solórzano and Yosso, 2002, p. 26). For example, African-American male experiences in STEM may reveal that while participation in the STEM college retention programs were helpful in readiness, other factors were at play that actually helped retain them (in STEM or other industries) and stay employed.

The third tenet is that CRT asks that civil rights legislation be questioned, and that liberal law and policy changes are not always enough or fast enough (Ladson-Billings, 1998). They are only one piece of the puzzle and not the solution or end of the conversation of inequity – for example, affirmative action. Revolutionist History suggests that American history be re-examined and reinterpreted versus accepting historical recounts at face value (Harper et al., 2009). This is where a CRT theorist would challenge historical analyses and require that they be placed in both a historical and contemporary context (Solórzano and Yosso, 2002). Pertaining to this study, looking at policies for diversity and recruitment in STEM would ask that a CRT scholar consider why diversity and inclusion and diverse student enrollment in STEM continues
to be mentioned but does not appear to necessarily be an industry or educational priority, or ulterior motives for diverse recruitment such as grant funding, increased enrollments, and donor sponsorship.

The fourth tenet of CRT builds upon this concept of taking self-interest into consideration, and that when it comes to policies such as civil rights legislation, Whites have been the predominant beneficiaries (Ladson-Billings, 1998). CRT scholars recognize this interest-convergence, in which as long as white self-interests are promoted the white power structure will permit racial advancements for African-Americans (Harper et al., 2009; Sleeter, 2017). For example, concerning affirmative action, more White women have been hired versus Black men and Black women. Despite funneling millions of dollars into diversity initiatives, tech still employs a larger share of whites, Asian Americans, and men compared to the overall private industry (U.S. Equal Employment Opportunity Commission, 2016). Additionally, “African American workers are less than 1 percent of Executives and Managers at select leading Silicon Valley firms, and Hispanic workers are 1.6 percent” (U.S. Equal Employment Opportunity Commission, 2016, p. 3).

The fifth CRT tenet identifies whiteness as property, which in contemporary times has been recognized as White privilege (Capper, 2015). There is a property interest associated here, which carries social and cultural capital from generation to generation while African-Americans continue to play “catch up” after years of segregation and operating at a social and cultural deficit (Capper, 2015). As it pertains to this study, while it would be nice to assume the residual effects of institutional racism have been washed away, African Americans are incarcerated at more than 5 times the rate of whites (NAACP, 2018). In the 2015 National Survey on Drug Use and Health, about 17 million whites and 4 million African Americans reported having used an
illicit drug within the last month (NAACP, 2018). Despite this, the imprisonment rate for African Americans for drug charges is almost 6 times that of whites (NAACP, 2018). And finally, Black people were killed by police at more than twice the rate of white people in both 2015 and 2016 (Swaine and McCarthy, 2017). Participants in this study will have a unique perspective to share, given these dreary statistics working against them.

The sixth tenet of CRT focuses on color blindness. In other words, CRT challenges and rejects the notion of a colorblind society and view it as a method to mask White privilege and power due to the lingering effects of historical racism (Harper et al., 2009; Sleeter, 2017). CRT scholars emphasize the fact that not all forms of racism are blatant, and color blindness conceals macroaggressions and less prevalent forms of institutionalized racism (Harper et al., 2009; Solórzano and Yosso, 2002). More specifically, CRT scholars challenge “the traditional claims that educational institutions make toward objectivity, meritocracy, colorblindness, race neutrality, and equal opportunity” (Solórzano and Yosso, 2002). Specific to this study, African-American men who completed a college STEM retention program still may have experienced forms of microaggressions that could have negatively impacted their experience in STEM, especially at a Predominantly White Institution (PWI).

The final and seventh tenet of CRT is a contemporary one, focusing on encompassing multiple underserved identities of race, ethnicity, gender, religion, disabilities, and sexual orientation (Capper, 2015). CRT scholars are “committed to social justice and offer a liberatory or transformative response to racial, gender, and class oppression” (Solórzano and Yosso, 2002, p. 26). As it pertains to subjects in this study, if they encompassed other identities, these aspects were captured and considered in addition to their African-American male status.
**Critical Race Theory and White Privilege.** CRT scholars are unified by two common interests. The first interest is to understand how White privilege was created and maintained in America. Contemporary authors recognize these scholars as Racial Realists, or “individuals who do not only recognize race as a social construct, but also realize that racism is a means by which society allocates privilege and status” (Harper, 2009, p. 392). The second interest focuses on the social justice mission of changing the bond that exists between law and racial power (Ladson-Billings, 1998). Building on the fifth tenet of CRT, enforces the fact that Whiteness being associated with property, and White curriculum being categorized as White property, resistance can be expected when trying to incorporate race in curriculum. There needs to be an “underscoring of past and present inequities in education and the larger maintenance of privilege mainly because White people fear that systemic changes will threaten them in personal ways (such as loss or status of control) and gains of people of color mean losses for Whites” (Sleeter, 2017, p/ 157). For example, look at the results of “Black Lives Matter” and the creation of “All Lives Matter” has provided additional fuel for the Trump campaign and his supporters. As such, we are defining White privilege as a system of opportunities and benefits conferred upon people simply because they are White. Indeed, Whiteness is a category of privilege” (Solórzano and Yosso, 2002, p. 27).

**Critics of Critical Race Theory.** According to Closson (2010), there are some limitations with CRT. The first being the CRT tenet that U.S. racism is normative, and that continuing to accept this may continue to work against disadvantaged people of color (Closson, 2010). Closson (2010) continues by criticizing CRT theorists for “offering little in the way of alternative systems to replace the ones they critique or solutions to address the problems they identify” such as affirmative action, for example (p. 277). A third critique of CRT is that
“counter-story-telling is overused and that legal rulings are underused” and “only 8 of the 21 articles were empirical studies, and all but 1 was qualitative” (Closson, 2010, p. 277).

There are a few limitations in using this theory as applicable to this study, and those include other intersecting identities of oppression which include sexuality which looks at the seventh contemporary tenet. For example, Glazer-Raymo (2008) states that “critical race feminist literature suggests that negotiation of multiple identities, particularly by people who have multiple monodominant identities, exacts a painful toll on those doing the negotiating” (p. 36). This is also in alignment with Crenshaw (1994), who talks about intersectionality and states that “women of color experience racism in ways not always the same as those experienced by men of color, and sexism in ways not always parallel to experiences of white women” (p. 109). This is a potentially lost opportunity to connect the dots of the unique experience that women of color experience. Also, as applicable to STEM, there is a lost opportunity to talk about Silent Technical Privilege. According to Guo (2014), Silent Technical Privilege occurs when those who "look the part," or conform to society's stereotype of what a tech-savvy, number-crunching programmer or engineer looks like, receive the benefit of the doubt or implicit endorsement in technical settings. The flipside of Silent Technical Privilege is Stereotype Threat, and other hidden obstacles that those who do not fit the profile often experience in pursuing science, technology, engineering, and math (STEM) education or technical careers (Guo, 2014). Women, particularly women of color, have been largely marginalized and underrepresented in STEM.

**Application to Study.** The most relevant tenet of CRT applicable to college STEM retention programs is the second tenet focused on the experiential or story telling aspect of CRT. This study allowed for the exploration of existing gaps in terms of cultural and social capital resources, specifically those subconscious and conscious privileges enjoyed by whites that could
potentially be replicated and repackaged in a way that does not compromise the identity or culture of African American students (Ben-Ami, 2015). For example, instead of putting African American students in an environment where they are surrounded by people who look like them and then throwing them into a predominantly White environment, give them the tools and training (like code-switching, navigating office politics) before they enter a predominantly White environment and incorporate some form of experiential learning that gives this skill set a practice run.

Summary

College STEM bridge and retention programs may serve as a potential solution to reduce unemployment rates and increase Master’s degree attainment rates, specifically among high-achieving African-American men and specifically in STEM. The overall research question guiding this inquiry is to determine what impact these STEM bridge and retention programs have on African-American male employability, and what success factors are most critical to high achieving African-American male first-generation students in order to increase their employability. This question is being asked in order to hone in on the employment placement rates of existing college STEM retention programs, and if there’s the potential to fill any gaps. The literature review in Chapter Two speaks to the oversaturation of research on the failure underrepresented minorities in literature, and the second part advocates for the adoption of an anti-deficit achievement framework in order to address the potential success factors most critical to high achieving African-American first-generation men who are employed. Chapter Three describes the research design and approach necessary to capture the qualitative data needed to answer the research question. CRT will help to illustrate how various policy decisions have caused African Americans to take three steps forward and two steps back over the lifespan of
higher education, specifically when it pertains to STEM education (Harper et al., 2009). What needs to be remembered is that diversifying STEM degree obtainment is good for all Americans by improving global competitiveness, decreasing crime and poverty, and reinforce the democratic ideals of the U.S. (Harper et al., 2009). As Harper et al. (2009) states, “while it is important to acknowledge and honor historical advances, contemporary times call for new policy efforts to solve persistent problems” (p. 410).
Chapter Two: Literature Review

College STEM retention programs may serve as a potential solution to reduce unemployment rates and increase Master’s degree attainment rates, specifically among high-achieving African-American men in STEM. The intention of this literature review was to identify the existing bridge and retention programs currently serving underrepresented populations in STEM and assess the impact that these success factors are already having on the retention, graduation, and employment rates for the populations being served. The overall research question guiding this inquiry is to determine what impact these programs have on African-American male employability, and what success factors are most critical to high achieving African-American first-generation students in order to increase their employability. This question is being asked in order to hone in on the employment placement rates of existing college STEM bridge and retention programs, and if there’s the potential to fill any gaps.

In order for a college bridge or retention program to be successful, it should first focus on preventing isolation by making sure that faculty are both diverse and trained to work with minority student populations. It should also provide social capital resources through mentorship programs, and an experiential education model tied directly to the industry the student wishes to pursue. Finally, the model should not necessarily encourage the student to sever family ties but invite their family to become engaged in a productive way that invites them to potentially return to the educational community, by volunteering, attending workshops or returning to school themselves.

The results of this research study address the industry problem at large for minority students by incorporating a little bit of everything that works for the existing programs, adding
new components that may have been overlooked, while simultaneously removing what hasn’t been effective. A dynamic and more customized approach would be required as a result, to ensure that the student needs are being met. Many of these programs are prescriptive and do not consider that some students might need some services while others might differentiate.

Capturing some of these key metrics prior to enrolling in the program will be crucial so that a student profile can be analyzed and monitored over the completion of the program and beyond.

This literature review is organized by two key strands of literature and subsequent themes. The first theme is the oversaturation of literature on the failure of underrepresented minorities, as opposed to how they can and have succeeded. The causes and impact as a result of this oversaturation is also called out. The second theme is the adoption of an anti-deficit achievement framework, and the identified success factors, their impacts, and programs in existence that encompass most of these success factors.

**Oversaturation of Literature on the Failure of Underrepresented Minorities**

Literature and research have become oversaturated concerning why and how African American males fail in education, as the employment, incarceration, and education statistics suggest. This includes the fact that unemployment rates for Black men over 20 years of age as of 2012 was 14%, which is the highest in comparison to White men at 6.7%, Hispanic men at 8.9%, and Asian men at 5.4% (Bureau of Labor Statistics, 2013). Second, two-thirds of Black men who start at public colleges and universities do not graduate within six years, which is the lowest college completion rate among both sexes and all racial groups in higher education (Harper, 2012). Finally, one in six black men have been incarcerated since 2001 – if this trend continues, one in three black males born today can expect to spend some time in prison during his lifetime (NAACP, 2013). But as a result, education has neglected to find a productive solution, and has
only uncovered more gaps (Harper, 2012). The heavy focus on the demise of African American men in education can almost serve as a self-fulfilling prophecy expressed subconsciously and otherwise by administrators and continue to feed the stereotypes concerning African American men—which in turn are potentially internalized by Black men from a young age and beyond, and the cycle continues.

The Causes

**Isolation.** There are numerous theories as to why these low retention and graduation rates occur. One theory is an overall feeling of isolation, which is manifested in many different ways. Brittian, Sy, and Stokes (2009) categorize this feeling of isolation as acculturative stress, which is something that “African American college students suffer from, as a result of an observed threat to one’s cultural beliefs and values that create a unique vulnerability to psychological stress” (p. 87). Double consciousness is another form of isolation, and was characterized by W.E.B. DuBois as "this sense of always looking at one's self through the eyes of others, of measuring one's soul by the tape of a world that looks on in amused contempt and pity" (Davis, D. J., Reynolds, R., & Jones, T. B., 2011, p. 33). Code switching, or according to Hinton (2009) shifting similar to this concept of double consciousness and occurs when women of color specifically engage in “a grown-up game of pretend” changing the tone of their voice, attitude, appearance, and disposition in order meet the cultural codes of modern workday America and codes of society that exist within gender, class, and race (p. 397). The book Whistling Devaldi illustrates the concept of “passing,” or living as white despite being black in every conventional meaning of the term (Steele, 2010). For example, Anatole Broyard, editor for the New York Times, never revealed his Black identity until just before he passed away (Steele, 2010). As a result, “he changed the contingencies that went with it – the constraints he had to face, the
opportunities he would be given, the pathways he could go down…he would be met with different expectations…he could live in different places …have access to different resources” (Steele, 2010, p 66). This isolation continues to be experienced in the context of a predominantly white institution, where on most campuses African Americans are rarely perceived as high achievers (Freeman, 1999). As a result, when admitted to honors programs they experience even further isolation from other students of color (Freeman, 1999). This perception carries forward in STEM in particular, specifically for men of color. According to Lundy-Wagner (2013) “compared to Black women in STEM, Black men perceived less social support and more social barriers to pursuing STEM” (p. 161).

**Limited Social Capital Resources.** The second potential reason for these low retention and graduation rates could be due to a lack of social capital resources. According to Parks-Yancy (2012) social capital is defined as the “relationships among people in a social group from which resources (information, influence, or opportunity) are exchanged among group members” (p. 523). Aldrich (2012) adds additional layers and depth to social capital by defining the varying types of bonds and links that are formed within a community. For example, bridging social capital is focused on social capital gained by way of horizontal connections “to extralocal networks, crossing ethnic, racial, and religious cleavages” (p. 32). The second dimension linking social capital, which is focused on social capital obtained by way of vertical connections “between people who are interacting across explicit, formal or institutionalized power or authority gradients in society” (Aldrich, 2012, p. 33). This is crucial since first generation African American college students have unequal social capital resources relative to other racial groups (Parks-Yancy, 2012, p. 511). Second, social capital resources have the potential to facilitate upward mobility by providing information about employment opportunities, and in turn
can “help people obtain employment, training, and receive better paying and more prestigious jobs” (Parks-Yancy, 2012, p. 521). According to Aldrich (2012), for vertical social capital or linking to occur, the link has to be mutually beneficial to both parties “on the basis of mutual respect, trust, and equality of status, despite the manifest of inequalities in their respective positions” (p. 33). This is where bridge programs continue to be a potential common goal, where industry and underserved populations in STEM both have their needs met simultaneously.

**Limited Teacher Sensitivity Training.** Additional identified reasons as to why there are low retention and graduation rates for minority populations is due to reinforced feelings of isolation as a result of a limited teacher education training to work with disadvantaged student populations, and a lack of diverse (tenured) faculty at predominantly white institutions (PWIs). First, according to Samaras and Wilson (1999), teacher educational programs that do not do much to expand the teacher’s knowledge and interaction skills with low income families from inner city schools and continue the cycle of miseducation about familial involvement. Teachers need to be trained, preferably via experiential learning, in order to know how to effectively work with low income families in the K-12 environment, given that they are more often than not coming from different socioeconomic, educational, ethnic, and language backgrounds (Samaras and Wilson, 2012). This is significant to DeCuir-Gunby (2009) because “educators, including both White teachers and administrators, have an impact on the racial identity of development of African American students” (p. 114). Additionally, “research has documented that White teachers often treat their students differently and have different expectations for them depending upon their gender, race, and perceived academic abilities” (DeCuir-Gunby, 2009, p.114). This results in a perception of African-American students being held to a lower academic expectation than that of their White peers (DeCuir-Gunby, 2009). This cycle of isolation continues as
underrepresented populations move beyond K-12 education. For example, the quality of curriculum at community colleges specifically in STEM fields are viewed with suspicion by the university and liberal arts faculty making it harder for students to transfer – even those who have done well (Dowd, 2012). In order to break this cycle, Dowd (2012) recommends a formal incentivized system that supports transfer students and rewards “college faculty in all sectors as well as professional development in teaching, curriculum development, and collaboration” (p. 108)

Lack of Diverse Faculty. Despite efforts to improve career advancement for and retention of Black faculty—and an increase in the amount of tenure-track Black faculty—there continues to be disproportionate numbers of Black faculty specifically at predominantly White institutions (PWIs) (Behar-Horenstein, L. S., West-Olatunji, C. A., Moore, T. E., Houchen, D. F., & Roberts, K. W., 2012). Non-white faculty represent only 18.4% of full-time faculty nationally, and a smaller percentage of tenure-track faculty (Griffin, 2013). When compared to Whites, Black faculty members are disproportionately underrepresented at U.S. research universities, especially at the associate and full professor levels. According to Dowd (2012), “the need to increase faculty diversity is acknowledged, as is the limited progress in that direction” (p. 121). Even though there has been an increase overall concerning representation, “a higher percentage of them are still employed in non-tenure track positions” (Modica and Mamisheishvilli, 2010, p. 118). The potential reason that, despite these efforts, faculty of color are still underrepresented is “due to universities focusing on the recruitment rather than the retention of African American faculty” (Frazier, 2011, p.2). There has arguably been a negative impact on African American students and higher education overall as a result of the underrepresentation of African American faculty. First, “this is a matter of talent loss within the
context of an increasingly diverse study body” (Chambers, 2011, p. 247). If institutions do not make this more of a priority, the high dropout rate of minority students will continue to persist who were not given the proper social support and connections needed in post-secondary education (Chambers, 2011).

The Effects

**Low graduation rates.** Jackson and Reynold’s (2012) states that “despite improvements in access to colleges and universities, black college students have lower graduation rates than white college students” (p. 338). Also, at four-year institutions the black-white graduation rate gap is almost 20 percent (Jackson and Reynold, 2012). According to Posselt and Black (2012), if the African American student is a first-generation college student, they are at even greater risk of having lower levels of academic preparation, rates of degree completion, educational expectations, and the pursuit of graduate education. According to Wilson, Ingra, Pang, Warner, and Luces (2012), retention is particularly low in STEM fields for low-income and minority groups. Some factors that continue to work against the persistence of black men include “poor help-seeking behavior, lack of financial aid, and problem at home” according to a 2009 study conducted by Palmer et al. (ASHE Higher Education Report, 2014, p. 61).

**High unemployment rates.** According to Bausmith and France (2012), the 2007-2009 recession had a disproportionate impact across demographic groups as it relates to unemployment rates and specifically long-term unemployment (being out of work for 27 weeks or more). Demographic groups with the highest rate of unemployment included men, African Americans, Hispanics, teenagers, and workers in construction and manufacturing (Bausmith and France, 2012). For those with only a high school diploma as opposed to a bachelor’s degree,
unemployment was 3.5 times higher (Bausmith and France, 2012). What is causing these high unemployment rates? According to Parks-Yancy (2006), while blacks have made some progress, they still have more difficulty with employment and career outcomes due to weaker social ties that are minimal as opposed to those that exist for whites. So, the assumption is that one of the reasons why employment rates are so low for African Americans is because they lack social capital resources, and those that have social capital resources either do not have the right ones or they aren’t leveraged as effectively as they are for Whites. Additionally, African Americans are also less likely to be promoted than Whites (Parks-Yancy, 2006). This is potentially having a cyclical effect, especially with STEM. Daire, LaMothe, and Fuller (2007) found that future income and status has a greater influence on the career choice of African American college students than on the career choice of White college students. More specifically, they place a higher value on salary given the continued rates of “education deficits, employment stagnation, and poverty in the US” (Diare et al., 2008, p. 275). This has the potential to decrease the likelihood that an African-American male might pursue a career in STEM given the negative environments starting from K-12 and beyond, the reduced chance of upward mobility, despite the industry needs to fill and diversity the pipeline.

**Reduced STEM pipeline.** While the STEM industry is begging for a diversified pipeline of candidates, and despite all of the existing programs (grants, scholarships, bridge programs) STEM persistence for underrepresented populations continues to be problematic. According to Strayhorn (2010), despite growth in STEM employment at nearly 40 percent over the past ten years, STEM degree graduates is not meeting this level of demand specifically for URMs “who only represent six percent of the STEM workforce in general and 4.6 of those working in STEM fields with advanced degrees” (p. 86). At the STEM bachelor’s degree level,
only 24% of URMs completed within six years in comparison to 40 percent of white students, “representing a large and persistent racialized attainment gap” (Strayhorn, 2010, p. 85). At the doctoral level African Americans represent less than 3 percent to 0 percent across the STEM fields (Strayhorn, 2010). This in turn may have a negative impact on the diversified faculty within STEM degree programs that can help to reduce isolation.

Our lack of diversified talent in STEM also weakens our “U.S. global competitiveness, potentially reduces national security, and almost ensures continued exploration of highly technical jobs to countries outside of the United States” (Strayhorn, 2010, p. 86). According to Dowd (2012), while the problems of diversification of talent in STEM are both structural and cultural, our approach has only been structural – and both methodologies are needed to be promote successful learning environments. For example, “the finding that science and mathematics courses too often function as “weed out” or “gate-keeper” classes that turn students away from STEM majors is a prominent one (Dowd, 2012, p. 121). Commonly associated attributes with courses such as these include the emphasis of rigor over support, grading on the curve, encouraging a stressful and competitive learning environment, and the memorization of facts as opposed to experiential learning and contextualized problem solving (Dowd, 2012). According to Dowd (2012), while these practices might be seen as a required and academically rigorous by the STEM industry, “researchers have highlighted their negative effect on racial-ethnic minority students and on women” (p. 121). In fact, others support the fact that this very same objective and rigorous educational environment in STEM may be viewed as “racialized, unsupportive, and alienating by others” (Dowd, 2012, p. 125). For example, “numerous studies and reports provide evidence that students of color and women experience formal STEM postsecondary learning environments as discriminatory, hostile, and alienating.” (Dowd, 2012, p.
Among the minority students who have participated in these studies have cited classroom climate, campus climate, and a lack of mentoring as the primary reasons that lead to their STEM attrition (Wilson et al., 2012).

**Summary**

It is clear that higher education has identified what doesn’t work and how and why we are failing to recruit more men of color to STEM fields. This includes isolation, limited social capital resources, limited teacher sensitivity training, and lack of diverse faculty. We also know how this will continue to have a negative impact on our society, which includes low graduation rates, high unemployment rates, and a resulting reduced STEM pipeline for thousands of vacant critical positions. Focusing on how and why African-American men fail in STEM has been oversaturated – now it is critical for the focus to shift towards an anti-deficit framework.

**Adoption of an Anti-Deficit Achievement Framework**

According to Harper (2012) as educators an anti-deficit achievement framework needs to be adopted. This will allow for educators to pay more attention to success factors and answer the question as to how minority populations succeed in education. In order to break the cycle, success factors need to be clearly identified and supported by research. Then, the determination needs to be made as to how to maintain and create an environment built to support these success factors.

**Identified Success Factors**

**Graduation and Retention Rates.** Recent data indicate that nearly 20% of Black STEM undergraduate degrees were conferred by HBCUs (Lundy-Wagner, 2013, p. 160). “Black male HBCU undergraduates were conferred more degrees in Computer Science (representing a 262%
gain), Biological Science (representing a 12% gain) and Engineering (representing a 3.5% gain) in 2009 than in 1981 (Lundy-Wagner, 2013, p. 162). “Research from other scholars has supported the impact that the HBCUs have on the retention and persistence of Black students” (ASHE Higher Education Report, 2014, p. 61).

**Employment Rates.** Cooperative education program participants are “more likely to be employed (in their field of study, specifically) and have higher earnings than those who do not participate in coops” (Goho and Rew, 2009, p 86). Cooperative education, internships, practica, and service-learning help college students to learn about potential careers and career decision making (Coulter-Kern, et al., 2013). Data shows that more than 86% of interns and co-ops who are offered a full-time position accept employment, and that the retention of these employees is higher than those without at a rate of 62% five years after their start date (NACE, 2012). Cooperative Education programs are beneficial to the students and the employers – especially if the interns are retained. Cooperative education benefits the student by providing “work experience, hands-on application of classroom learning, a network of contacts, and improved employment outcomes after graduation” (Goho and Rew, 2009, p. 86). Therefore, cooperative education benefits the employer by providing “superior labor force flexibility, reduced costs of recruitment and training, and input into curricula development at community colleges and universities” (Goho and Rew, 2009, p. 86). Hurst, Good, and Garnder (2012) agree with the notion of saved costs, and also state that internship programs reduce the shock of making the transformation from college to the workforce. According to Bartkus (2001), social skills training can have positive effects on the perception of co-op education and internship students, and as a result benefit the sponsoring organization.
**Mentorship.** Mentorship improves retention and graduation rates with academically at-risk African American students (Brittian, Sy, and Stokes, 2009; Igbo, I. N., Straker, K. C., Landson, M. J., Symes, L., Bernard, L. F., Hughes, L. A., & Carroll, T. L., 2011). This is because students who did participate in mentorship programs experienced “personal growth, motivation for success, emotional support, and academic support” (Brittian et al., 2009, p. 93). Mentorship relationships are also a source of providing the social capital resources needed to improve career trajectories for African American students (Brittian et al., 2009). According to Freeman (2010), “mentoring as a service can be particularly important to individuals who are in an environment that is culturally different from theirs” (p. 17). Benefits of faculty mentorship have been shown specifically for undergraduates involved in research programs and for underrepresented minority students (Eagan, K., Sharkness, J., Hurtado, S., Mosqueda, C., and Chang, M., 2010, p. 154). Most of this literature demonstrates cognitive and affective gains for students, such as increased retention rates, higher grade point averages, and greater clarity of academic and career goals (Eagan, K. et al, 2010, p. 155). According to the ASHE Higher Education Report (2014), mentors are critical specifically to the success of Black men in particular in postsecondary education as mentors can first act as powerful agents and second can help to encourage Black male engagement on campus.

**Grit.** According to Strayhorn (2013), grit is positively associated with academic outcomes such as grades in college for Black males at PWIs (p. 7). Strayhorn’s study also revealed that grit positively predicts achievement in challenging domains over and beyond mere talent – thus, Grit may prove to be an effective lever for raising Black male academic success (Strayhorn, 2013, p. 7). Strayhorn (2013) recommends that educators consider how grit can be enhanced through formal opportunities for Black men by engaging them in experiences and
opportunities such as group work, motivational speakers, or by way of mentorship which in turn could lead to higher college grades. More specifically, program advisors could incorporate this into time management tips, focusing more on both short-term and long-term goals as opposed to “isolated or one-time attempts to work hard or study long hours [which] will likely have little to no influence on Black males’ college grades” (Strayhorn, 2013, p. 8). According to Strayhorn (2013) “sustained effort and hard work over a period of time, despite setback failure, is, in part, the formula for Black males’ academic success in college” (p. 8).

**Familial Involvement.** According to the ASHE Higher Education Report (2014), family has been identified as critical to the success of Black men in higher education. For example, “in a qualitative study of 50 Black students (24 of whom were men), Barnett (2004) found that participants’ families played a critical role in their success by decreasing stress and serving as an emotional outlet” (ASHE Higher Education Report, 2014, p. 79). Winkle-Wagner (2009) supports the incorporation of familial inclusion when students first arrive on campus, such as asking parents to serve on advisory boards or volunteer for campus events. According to Parks-Yancy (2012), for college students to gain social capital resources they are lacking, it is most critical to sever some of the familial social and cultural ties in order to adopt a more independent self-perspective. On the other hand, Samaras and Wilson (1999) advocate for the family to play a role in the K-12 children’s learning, which is demonstrated to show improvements in the children’s learning capabilities. What is agreed upon by both is that kinship relationships in the African American community are the primary source of social resource capital for children living in urban (and assumed to be low-income) areas. But where they differentiate is that Samaras and Wilson (1999) believe that family-school involvement should be encouraged, while Parks-Yancy (2012) suggests that this tie is too strong and needs to be severed.
since it is essentially the “blind leading the blind” – the disadvantaged parent is unable to provide the social capital resources their child needs or will need. Given this contradiction, the Parks-Yancy (2012) argument is sound, but this becomes null and void if through these family-school involvement programs the parent(s) were capable of acquiring the social capital resources needed to guide their child through a successful post-baccalaureate career.

**Undergraduate research experiences.** Undergraduate research experiences are effective for attracting and retaining all science majors and serves as a pathway to a scientific research career (Strayhorn, 2010). The reasons for this include the fact that these research experiences promote a sense of belonging via faculty and peer interactions by way of authentic learning activities, usually research-focused and “emerges from these studies as an essential ingredient for STEM reform” (Dowd, 2012, p. 121). Undergraduate research experiences have a uniquely positive impact for first-generation, underrepresented minorities in STEM (Posselt and Black, 2012). According to Posselt and Black (2012), studies revealed that these populations:

Scored higher on the Student Analytical Development Index than continued generation students who had participated in research, and also higher than first-generation students who did not have an undergraduate research experience (p. 28).

Posselt and Black (2012) also found that for women and minority students, participation in research-related activities also increased their motivation to pursue science careers.

**Experiential learning.** The most notorious innovations that have been developed to address the gaps and lack of diversity in STEM include “various types of active learning and design projects, service learning, bridge programs, learning communities, and other approaches to integrated interdisciplinary curricula” (Dowd, 2012, p. 121). Work based learning (WBL), which is assumed to expose at-risk students to mentorship and social capital resource
opportunities, “have greater attendance and are less likely to drop out of school – keeping options of college and postsecondary education open to them” (Gemici and Rojewski, 2012, p. 242).

International internships develop global competencies. The benefits include more effective personal adjustments to foreign surroundings, greater ability to build and lead multinational teams, improved ability to cope with rapid change and uncertainty, and enhanced ability to adjust and respond to differing political and economic environments (Vance et al., 2013, p. 113). International experiential educational experiences are also beneficial to the students and the employers. They benefit the student by prepping them to work in a global marketplace and could lead to an international leadership position (Vance, et al., 2013). They also provide them with more of a global network and international social capital resources as a result that they can cash in at a later date for a possible career opportunity (Vance, et al., 2013). These skills benefit the future employer by demonstrating the unique ability to have cross-cultural sensitivity, relationship-building capability, greater creativity, and stronger problem-solving skills (Vance, et al., 2013, p. 113).

Service learning on the other hand is more of a service or community based experiential education, and encourages engagement with the community in order to apply the experiences to the real world (Coulter-Kern, Coulter-Kern, Schenkel, Walker, & Fogle, 2013). According to Coulter-Kern, et al. (2013), “students who participate in service-learning experiences in courses indicated these classes were more academically challenging, and that they understood the course material better” (p. 307). McClam et al. (2008) found that after completing a service-learning experience, “students reported that they learned more by applying classroom learning to actual experience and they felt more confident in their choice of profession” (Coulter-Kern, et al., 2013,
The claims made by Johnson (2013) are consistent in that service learning also connects students to the material, the community and subsequent learning outcomes. CBSL can develop desirable professionalism behaviors in physical therapists specifically, such as altruism, compassion, caring, and integrity as opposed to traditional programs (Wise and Yuen, 2013, p. 59).

**Programs that Work**

There are numerous examples of existing bridge programs for students aimed specifically at improving retention, persistence, and graduation rates for underrepresented minorities in STEM that have been proven to be effective. The programs below encompass the majority if not all of the aforementioned success factors to retain African-American men in STEM. The majority of these programs are grant-funded by the Department of Education or the National Science Foundation (NSF). Upon an exploration of these various models, it was rare to find bridge programs that encompassed some form of experiential learning outside of assisting faculty with research.

**Scholarships for Science, Technology, Engineering, and Mathematics (S-STEM)** program. The first is the NSF Scholarships for Science, Technology, Engineering, and Mathematics (S-STEM) program, launched to improve retention and graduation rates for disadvantaged and low-income students by strategically pairing scholarships with mentoring and training programs (Wilson, Z., Ingra, S., Pang, S., Warner, I., and Luces, C., 2012, p. 586). The program is focused on providing awards to institutions of Higher Education (IHEs) to “fund scholarships and to advance the adaptation, implementation, and study of effective evidence-based curricular and co-curricular activities that support recruitment, retention, transfer (if
appropriate), student success, academic/career pathways, and graduation in STEM” (National Science Foundation, 2017). An example of an effective S-STEM program implementation includes the two programs implemented at Louisiana State University, that has shown significant and measured success since 2000 (Wilson et al., 2012). The programs at LSU demonstrated success as a result of their nearly ninety percent graduation rate for all S-STEM participants (Wilson et al., 2012, p. 582). Key program attributes included mentorship from faculty, LSU administrators, and peer mentors from other degree programs; optional research training opportunities; service learning opportunities; and promotional of intercultural participation among non-minority and minority students (Wilson et al., 2012, p. 583). Students recruited to the program were offered an annual scholarship on top of the tuition waiver through Louisiana’s Tuition Opportunity Program for Students (TOPS) program over the period of the project (Wilson et al., 2012). While a portfolio of success factors was provided throughout the duration of the program, “the students cited mentorship as the most significant contributor to their persistence within their STEM undergraduate curricula” (Wilson et al., 2012, p. 584). The program’s effectiveness can be confirmed given “the six-year graduation rates for the program is 95 to 100 percent as of 2005-2010, in comparison to other US colleges closer to 40 percent (all students) and 20 percent (black students) nationwide and LSU undergraduates in STEM” (Wilson et al., 2012, p. 586).

Consortium to Advance Nursing Diversity and Opportunity (CANDO) retention program. The next model is the Consortium to Advance Nursing Diversity and Opportunity (CANDO), a three-year project intended to increase the number of baccalaureate-prepared nurses from diverse racial and cultural backgrounds (Igbo et al., 2011, p. 375). CANDO participants from 2004-2007 out of 105, 55 were African American, and 21 were Hispanic (Igbo et al., 2011).
Key program attributes included study skills workshops; writing workshops; communications activities; medical terminology; critical thinking by way of case studies, virtual patients, and human patient simulations; nursing career coaches; and socialization of students into the nursing role (Igbo et al., 2011, p. 377). Results reported an increase in GPA, and confidence levels for students, encouraging participants to take on leadership and mentorship roles themselves (Igbo, et al., 2011). The CANDO completion rate was 76.8 in comparison to the (Texas) state average of 69 percent, demonstrating the effectiveness of the program (Igbo, et al., 2011).

**Ronald E. McNair Post baccalaureate Achievement Program.** The third example is the Ronald E. McNair Post baccalaureate Achievement Programs, which are funded by the U.S. Department of Education. These programs are focused on research opportunities and as a pathway from undergraduate to graduate education (Posselt and Black, 2012). There are over 178 McNair programs across the US that have been implemented in a variety of ways, but the common thread is the intensive research experience (Posselt and Black, 2012). Evidence of its success includes the fact that “there is a higher rate of immediate graduate school enrollment among McNair college graduates at 36 percent, which is higher in comparison to the national rate of 25 to 30 percent” (Posselt and Black, 2012, p. 29). At Boston College, the Learning to Learn Center oversees the Ronald E. McNair Post-Baccalaureate Achievement Program which is a graduate school preparation program for Boston College undergraduates who are both low-income and first-generation college participants and/or under-represented (Boston College, 2017). The McNair program prepares undergraduates from these underrepresented groups to pursue and attain doctoral degrees and to enter careers in research and academia (Boston College, 2017).
Minority Students Pursuing Higher Degrees of Success (MS PHD'S) in Earth System Science program. The sixth applicable program model is the Minority Students Pursuing Higher Degrees of Success (MS PHD'S) in Earth System Science program, funded by NASA, designed to attract, engage, mentor, and sustain the involvement of undergraduate and graduate minority students within the Earth system science disciplines (Pyrtle and Whitney, 2008, p. 24). The pilot year from 2003-2004 included 25 participants with a focus on Ocean Sciences, of which 19 self-identified as African American, one as Mexican American, five as Puerto Rican, one as American Indian, one as native Hawaiian/Pacific Islander, and two as Multiethnic/multicultural (Pyrtle and Whitney, 2008, p. 27). Key program attributes included a team mentoring structure; virtual community engagement and orientation; academic and career discussions; student presentations; earth system science exposure by way of NASA tours; daily journal entries; and community building by way of informal social cultural events (Pyrtle and Whitney, 2008, p. 28).

Needs Assessment

According to Strayhorn (2010), limited studies exist that examine the influence of government-sponsored undergraduate research experiences on STEM graduate degree aspirations among URMs using multi-institutional survey data. Additionally, while some studies have addressed the ways in which TRIO programs promote college access and success for students of color, there has been very little focus specifically on Black men (ASHE Higher Education Report, 2014). Through completing an initial assessment of the existing STEM bridge programs, there are limited experiential education components even though this is a potential key success factor for persistence and retention in STEM employment across all populations. It is
also difficult to ignore the socioeconomic issues that surround the negative stigmatism of Black men, and its recent manifestation of violent and unprovoked shootings and deaths nationwide.

Conclusion

This literature review addressed two key strands of literature and subsequent themes, with the first theme being the oversaturation of literature on the failure of underrepresented minorities, as opposed to how they can and have succeeded. The second theme is the adoption of an anti-deficit achievement framework, and the identified success factors, their impacts, and programs in existence that encompass most of these success factors. This literature review has revealed a gap, which is focusing on how these college STEM bridge and retention programs specifically impact African-American men who are employed—if they’ve had any impact at all. The literature review also revealed a potential gap in how the college STEM bridge and retention programs could be better structured to encompass the success factor that experiential learning is associated with, specifically with retaining students of color.
Chapter 3: Research Design

Minority populations in the United States continue to experience high rates of educational deficits and lower college graduation rates, and African Americans and Latinos represent the lowest shares of the STEM workforce at 3% according the US Department of Commerce. The purpose of this doctoral thesis was to explore the potential benefits of STEM bridge and retention programs for high achieving African-American men who are currently in the workforce. The overall research questions guiding this inquiry was to determine the following:

1. What impact do college STEM bridge and retention programs have on African-American male employability?
2. What are the key success factors or attributes within the STEM bridge and retention programs for African-American male matriculation and employability, according to the participants?

These questions were asked in order to hone in on the employment placement rates of existing STEM bridge programs, and if there were potential to fill any gaps.

Qualitative Research Approach

For the purposes of this study, qualitative methods were the most compatible with the research goals, those being to capture the essence of the lived experience within STEM bridge and retention programs and their perceived impact on high-achieving African American men. According to Anfara and Mertz (2006), qualitative research can be linked to the methodology or research design by examining a phenomenon in a very specific way or from a specific viewpoint or lens, such as Critical Race Theory (CRT) or a constructivist paradigm. Qualitative methods are intended to describe and interpret the lived experiences of subjects within a contextual
environment (Ponterotto, 2005). They also use everyday language and leverage the participants’ voice to describe a psychological event, experience, or phenomenon (Ponterotto, 2005). Defining attributes of qualitative methods are reliant on the specific research paradigm supporting the inquiry of choice (Ponterotto, 2005). Creswell (2007) focuses on collecting data in the participant’s natural setting, in an inductive manner to pick up on patterns or overarching themes. From this perspective the participants are empowered, and their voices are heard, and as a result the power relationship that exists between the researcher and the participants in the study is minimized (Creswell, 2013).

From a philosophical perspective, the most applicable and aligned paradigm that defined the qualitative research methodology is a critical-ideological paradigm. The focus of the critical-ideological paradigm was on emancipation and transformation, which also incorporated the researcher’s values that remain central to the research methodology (Ponterotto, 2005). Key attributes associated with a criticalist researcher include use of his or her own work as a form of cultural or social criticism, and secondly they accept basic assumptions that they are in alignment with CRT (Ponterotto, 2005). Specific groups in society are more privileged that others, and oppression can be experienced in many different forms (Ponterotto, 2005). As a result, “mainstream research practices are generally implicated for the reproduction of systems of class, race, and gender oppression” (Ponterotto, 2005, p. 130). For example, the critical-ideological researcher may use similar interviews but is working under the assumption that the minority clients are not receiving adequate access to STEM careers, and he or she uses and presents the data in a form to pressure both higher education and STEM industries to create more STEM college bridge and retention program opportunities for men of color (Ponterotto, 2005). The focus in this paradigm would be on pinpointing the role that society has played in making sure
that disadvantaged students in fact, stay that way. In terms of data collection, the criticalist relationship with subjects is transactional, subjective, dialectic, focusing on “inciting transformation in the participants that leads to group empowerment and emancipation from oppression” (Ponterotto, 2005, p. 131). Given the need for intense immersion in the focus of the subject’s experience, “naturalistic inquiry leads to qualitative methods such as an in-depth face-to-face interviewing and participant observation” (Ponterotto, 2005, p. 132).

**Methodology**

From the perspective of a critical-ideological paradigm and a qualitative lens, applying CRT helps guide the reader through the framework of this study, why the assumption in this study is that underserved populations struggle more with employability in the first place, and how what higher education and STEM industries are doing is currently not enough. The selected research methodology was an interpretive phenomenological analysis (IPA). Rooted in phenomenology, hermeneutics, and idiography, IPA is a qualitative research approach that prioritizes the detailed personal lived experience of the participants, and what this experience means for them (Smith, 2010; Smith, Flowers, and Larkin, 2009; Smith and Flowers, 2009). IPA researchers are specifically interested in when these everyday experiences take on a specific significance, which usually occurs when something of great importance happens in our lives (Smith and Flowers, 2009). This shift occurs when the participant describes an experience, as opposed to just the experience of daily life (Smith and Flowers, 2009).

Secondly, IPA is committed to understanding the first-person perspective as opposed to the third-person, so that the priority focuses is on situating personal meaning in context and the everyday day lived experience that holds significance (Larkin, Eatough, and Osborn, 2011;
Smith et al., 2009). IPA takes it one step further and focuses on reporting on the participant’s experience by taking the researchers own view of the world into consideration (Rafique and Hunt, 2015).

**Phenomenology.** IPA is rooted in phenomenology. Smith (2010) defines phenomenology as “the philosophical movement concerned with lived experience and phenomenological philosophers converge on the need to conduct the detailed examination of experience on its own terms” (p. 9). This form of philosophy “emphasizes the attempt to get to the truth of matters, to describe phenomena, in the broadest sense of whatever appears in the manner in which it appears, that is as it manifests itself to consciousness, to the experience” (Larkin, 2011, p. 322). A study can be classified as phenomenological in nature when the study outlines the common themes or meanings across several participants of their lived experiences of a phenomenon (Creswell, 2013). The purpose of phenomenology is to isolate individual experiences down to a single phenomenon that can be described by a universally shared essence (Creswell, 2013). The process being, that qualitative researchers identify a phenomenon (in this case, being a high-achieving African-American male who has completed a STEM bridge or retention program), collects data from participants who have experienced this phenomenon, and comes up with a concise description of the essence of the shared experience across the participants (Creswell, 2013). The final description consists of not only what the participants experienced but how they all experienced it (Creswell, 2013).

The origins of phenomenology stemmed from Husserl, who focused on the experience in the consciousness of the participant, and “invokes the technical term intentionality to describe the relationship between the process of occurring in consciousness, and the object of attention for that process” (Smith et al., 2009, p. 13). Husserl also defined transcendental reduction or
phenomenology as looking at the nature of consciousness and the thing that lies beneath making it feasible for us to make us conscious of our experiences (Smith et al., 2009; Larkin, 2011). Satre was another phenomenological theorist, who emphasized that we are caught up in projects in the world with a focus on what will be versus what we are (Smith et al., 2009). Satre describes this as a concept of nothingness, where things that seem absent of importance are those very things that define who we are and how we view the world (Smith et al., 2009).

Hermeneutics. The second key theoretical underpinning of IPA comes from hermeneutics, which is the theory of interpretation (Smith et al., 2009). Hermeneutics stemmed from trying to provide a foundation of certainty for the interpretation of biblical texts (Smith et al., 2009). Hermeneutic theorists are most concerned with the methods and purposes of interpretation, the attempt to uncover the original meaning of the author, and the contextual relationship between the production of text and how it was interpreted (Smith et al., 2009). Smith (2010) describes IPA as “the process of engaging in a double hermeneutic, whereby the researcher is trying to make sense of the participant trying to make sense of what is happening to them” (p. 10).

Idiography. The third key theoretical influence on IPA is ideography, which is most concerned with the specific details of an experience and an in-depth analysis of them (Smith et al., 2009). Ideography also focuses on the details of the people who experienced a phenomenon, and under what context as it pertains to the situation of the phenomenon (Smith et al., 2009).

Rationale for IPA

The reasoning behind using IPA over other methodologies is focused on a few areas. First, IPA puts an “emphasis on a phenomenon to be explored, phrased in terms of a single
concept or idea” (Creswell, 2013, p. 78). In this study the phenomenon explored was the impact of STEM bridge and retention programs on African-American men. The second being “an exploration of this phenomenon with a group of individuals who have all experienced the phenomenon (Creswell, 2013, p. 78). In this study, the group of individuals were high-achieving African-American men who have completed a STEM bridge or retention program, who are currently employed.

Second, looking at the relationship between IPA and other qualitative approaches, IPA is more experiential as opposed to other discursive qualitative methods (Smith, 2010). IPA “turns on the lived experiences of individuals and how they have both subjective experiences of the phenomenon and objective experiences of something in common with other people” (Creswell, 2013, p. 78). Capturing the lived phenomenon of a shared experience amongst participants was the ultimate goal. In alignment with Husserl, our natural disposition to the world is based on numerous assumptions, and while this helps us navigate our everyday lives, they also obscure and distort proper comprehension (Larkin, 2011). African-American males who completed a STEM bridge or retention program may not realize the impact that it had on their everyday lives and employment status.

The third aspect focusing on “the researcher bracketing himself or herself out of the study by discussing personal experiences with the phenomenon” (Creswell, 2013, p. 78). Bracketing is a defining characteristic of transcendental phenomenology and is in alignment with Husserl’s concept of eidetic reduction (Larkin, 2011). Eidetic reduction “is a process of imaginative variation: We ask, “what if?” and then imagine alternative ways of seeing a phenomenon – by varying or removing certain characteristics” (Larkin, 2011, p. 323). Bracketing is focused on proceeding with an open mind while simultaneously calling out and confronting the researcher’s
presuppositions (Larkin, 2011). This does not completely remove the researcher from the study but helps to identify personal experiences with the phenomenon and set those aside to some degree to assist with focusing on the experiences of the participants (Creswell, 2013). Dowling (2007) talks about the concept of reflexivity, which in qualitative studies requires a process of continuous bracketing throughout each stage of the research process to explain how or if the researcher’s own experiences impacted the study. For example, taking an opportunity to reflect on people in close proximity who are employed in STEM (both men and women of color) and what they had to endure to get there. This was also an opportunity to reflect on the researcher’s personal bridge program experience, and why the researcher did not persist in a STEM degree program.

Research Design

Participants

Participants were selected based on high-achieving African-American men who are currently employed or enrolled as full-time students, who have all experienced the same phenomenon—the completion of a college STEM bridge or retention program. The site selection criteria focused on STEM bridge and retention programs offered at private four-year institutions that offer these programs. The preferred region of completion was New England but given that STEM bridge and retention programs are funded nationally by programs such as TRIO, the goal would be to sample nationally and narrow from there.

Sample Selection

According to Creswell (2013), in a phenomenological study the participants can be located at a single site, but this is not a requirement. The key factor is that the individuals must
have all experienced and be able to articulate the same phenomenon being explored (Creswell, 2013). First, the strategy for the purposeful sampling of these college STEM bridge and retention programs will intentionally sample a group of individuals that can best inform the researcher about the research problem being examined (Creswell, 2013). Second, Creswell (2013) would recommend against conducting research on participants and programs outside of the researcher’s current employer, “given the fact that research conducted in your own backyard (within your own institution, agency, with friends or colleagues) is questionable and risky” (p. 151). The reason for this is that “researchers can jeopardize their jobs if they report unfavorable data or if participants disclose private information that might negatively influence the organization or work place” (Creswell, 2013, p. 151). Third, a narrower range of sampling strategies is recommended for phenomenological studies, since all participants need to have the shared experience with the phenomenon being explored (Creswell, 2013). For this reason, criterion sampling works well, which focuses on a sample that in some way can meet specific criteria and will be helpful to have quality assurance (Creswell, 2013). Criteria for this group of participants was as follows: African-American; male; low-income; first-generation college students; graduated from and obtained their Bachelor of Science (BS) or Bachelor of Arts (BA) degree; are currently employed full-time; and are no younger than 25. The shared phenomenon that they all experienced was the completion of the IGNITE college bridge program, at Northward University which is a private four-year research institution. This criterion was important for the following reasons. First, the researcher wanted to ensure that the group was as homogeneous as possible, which includes an assumed shared social capital deficit. While they may still be eligible for some of these bridge and retention programs, sectioning out students who may have more social capital due to their family’s economic status or experience is critical.
to determine what impact these programs are having on their employment. Second, the goal was to look at a population who is currently employed, preferably in STEM, to see if there are any key attributes of the bridge or retention program that impacted their employment status. Finally, the minimum age of 25 was key as the goal was to look at participants who have had some time after graduation to navigate their career pathway—the assumption is that this takes some time post-graduation. Finally, the preference was to interview participants who reside in Massachusetts or at least New England, as it would be easier to conduct more in-depth research in person.

The desired sample size was 6-12 participants. Smith et al. (2009) recommend between three and six participants, and state that it’s better to have a population size that is too small versus too large given the in-depth analysis required for IPA research studies. Creswell (2013) provides a minimum of 3-4 individuals and a maximum of 10-15 individuals. Given the criterion established and the themes from the shared phenomenon that the researcher hopes to reveal, it will be too challenging to find overarching themes with just a handful of participants. Once the full pool of eligible subjects was identified, the original plan was to use a simple random sampling method. Instead, participants were selected on a first-come first-serve basis given the small pool of eligible participants.

Site selection was focused on the following STEM bridge and retention program mentioned in the literature review: S-STEM, CANDO, Ronald E. McNair, IGNITE, and MS PHDs. The preferential program was the Ronald E. McNair program, given the researcher’s familiarity with Boston College’s Learning to Learn program structure which is funded by Ronald E. McNair. Second, the Ronald E. McNair program only supports Boston College undergraduates who are both low-income and first-generation college participants and/or
underrepresented (Boston College, 2017). Some anticipated issues included getting permission
directly from the individuals, as well as access to archival information such as alumni records.
Given that the researcher is also a Boston College alum, this site and program was initially
thought to be the most convenient in order to access subjects and archival data. Unfortunately,
the pool of eligible participants was too small, and the researcher was unable to obtain
participants. As a result, the participant modified the site location to the IGNITE program at
Northward University, where the researcher is a former employee and part-time faculty member.

**Protection of Human Subjects**

Before conducting the IPA research study, the plan to assure protection of human
subjects was conducted. First, participation in this IPA study did not cause harm to participants.
The study revealed shared experiences told by participants as they reflected on their IGNITE
program experience during and throughout their post-baccalaureate careers, and did not in any
way impact their current state of wellbeing other than reflective purposes. Smith et al. (2009)
state that a key starting point for any study is to avoid harm and that especially with a qualitative
study there is rarely a case to be made to deliberately violate this principle. Second, if for some
reason whether that be for personal reasons or because the reflection is too painful to the
participant, they had the right to withdraw at any time. Smith et al. (2009) state that “it is
conventional to see both qualitative and quantitative researchers offering participants the right to
withdraw at any time (p. 53). For example, if the memories and storytelling became too painful
for the participants to recall or if it is deemed by the researcher that the participant was becoming
severely uncomfortable in any way, the interview would have been concluded immediately.
Given the focus on success factors as opposed to failures and negative experiences, this should
have had a positive impact (if any) on the participants. Participation in the study was entirely voluntary and the selection process was equitable.

Third, informed consent was required to move forward with the research study for participants. Smith et al., (2009) state that “in qualitative research in general, and in IPA in particular, informed consent must be gained not only for participation in data collection but also for the likely outcomes of data analysis” (p. 53). The researcher did seek and obtain approval from the Ronald McNair Learning to Learn Program at Boston College, and from the IGNITE program at Northward University. As a courtesy the researcher gave participants the option to review data extracts from their own interviews (Smith et al., 2009). Most participants liked to have their voices heard and especially in the context of an academic or professional environment, but not at the cost of their anonymity. That is why the researcher also assured anonymity by making sure that the student data obtained was stored securely, was not distributed, and that participants were assigned unique identifiers and with names changed. Smith et al. (2009) clarify the fact that “anonymity is all that qualitative researchers can offer…to say that something is confidential is to say that no one else will see it, and this is not the case” (p. 53).

Data Collection

Interviews were conducted with subjects by the researcher to collect data. The interviews were around 45-60 minutes long. The interviews were predominantly virtual interviews, all one-on-one. The preference was virtual or in person interviews to start given that telephone interviews limit the researcher’s ability to see information communication and body language of the subject (Creswell, 2013). BlueJeans was used, given its ability to record video as well, given that “IPA is also committed to the use of verbatim transcript data” (Larkin et al., 2011, p. 322).
Smith et al. (2009) describe interviews for qualitative research as “a conversation with a purpose” (p. 57). IPA calls for this even more so, attempting to come at the research questions sideways (Smith et al., 2009). Phenomenological studies call for in-depth interviews as the primary method for data collection (Creswell, 2013; Smith, 2010). This also included the use of semi-structured interviews which provided a more flexible and natural interview schedule and the participant’s role was key in terms of what is discussed (Smith and Flowers, 2009). These interviews were responsible for allowing for the collection of robust and comprehensive data from a small number of participants so that they could be appropriately categorized to reveal themes (Larkin et al., 2011; Smith, 2010). An interview protocol or guide was provided to participants, which included five to seven open ended questions so that the participants were prepared for the interview (Creswell, 2013). If the interviews had taken place in person, the goal was to find a location that was quiet and free from distractions. Ideally this location would be at or near their alma mater, which would have been Northward University or Boston College. Since the location ended up being virtual, the tool to be used was BlueJeans, and the date, time, and join information was provided in advance to all participants. Participants were provided with a consent form for the human relations review board. The researcher reviewed the purpose of the study, and the amount of time that was needed to complete the interview and plans for using the results from the interview (Creswell, 2013).

**Data Storage**

The information that is typically collected is first archival data on the participants and then qualitative interviews, usually conducted with one subject at a time. Information is recorded via electronic notes or transcription software of some kind, in order to be coded and analyzed. Data is commonly stored electronically on computers or servers, or even potentially on
phones used as recording devices. The researcher collected data by way of an iPhone as a backup by using Temi. Participants were notified electronically, verbally, and with a written consent form that all information captured is anonymous, and that no identifiable information about them or their organization was used, and that they understood and agreed to all terms. The researcher used pseudonyms for participants and their organizations. The researcher asked them for their permission to record each session, and after the interviews were transcribed, the researcher provided participants with a copy of the transcript to verify and edit as needed. Afterward, the researcher destroyed the recordings. The researcher kept backup copies of the computer files, masked names of the participants and developed a data collection matrix as a visual means of locating and identifying information for the study (Creswell, 2013, p. 175).

Data Analysis

For the data analysis process, an interpretive phenomenological analysis was conducted. As a result, the researcher was focused on capturing the lived experience throughout the phenomenon – college STEM bridge and retention programs—that all the participants shared. Themes associated with previously identified success factors such as mentorship, social capital, cultural capital, as well as attributes associated with experiential learning were used classify the qualitative data. “Creswell (2013) defines these themes or categories as broad units of information that are made up of several codes combined to form a common meaning. The themes would be formed “by developing significant statements, and grouping statements into meaning units” (Creswell, 2013, p. 190). InqScribe can be used to code interviews, and a qualitative coding software like Compendium could be used to visually map codes to one another to help with alignment as opposed to just colors or text. The following steps were conducted to complete the data analysis for this research study:
Step One. The initial step included describing personal experiences with the phenomenon under study, which in this case is college STEM bridge and retention programs (Creswell, 2013). This was part of the bracketing process, in order to ensure that the focus of the analysis was the Zuris opposed to the researcher (Smith et al., 2009). This may involve the researcher reflecting on the interview experience and what was found from the researcher’s perspective to be the most significant themes and observations from the interviews conducted (Smith et al., 2009).

Step Two. This stage focused on the identification and development of significance statements focused on how the participants experienced the phenomenon, listing them out in no order of priority (Creswell, 2013). This stage explores content and language used from a more exploratory standpoint, approaching the notes with an open mind and inquisitiveness towards the transcribed interviews (Smith et al., 2009). The use of key words, phrases, or other explanations is recommended, that will be used to help shift the researcher’s focus towards the participant’s comprehension of the phenomenon (Smith et al., 2009).

Step Three. The focus would shift here towards forming these significance statements into larger and broader themes (Creswell, 2013). The goal is to consolidate without losing the complexity of the patterns, interrelationships, and emerging patterns (Smith et al., 2009).

Step Four. This is where the focus shifts from identifying themes to focusing on their differences or potential oppositions or polarization (Smith et al., 2009). The researcher will focus on describing “what happened” and “how it happened” to the participants who experienced with the phenomenon (Creswell, 2013). According to Smith et al. (2009), “abstraction is a basic form of identifying patterns between emergent themes and developing a sense of what can be
called a super-ordinate theme…it involves putting like with like and developing a new name for the cluster” (p. 96).

**Step Five.** This is the final step where the summative essence of the phenomenon is captured (Creswell, 2013). This is where more of the theoretical components would be drawn upon, that the themes may be in alignment with.

**Trustworthiness and Research Bias**

The researcher is aware of the preconceived notions and biased perspective given that the researcher shares many overlapping characteristics with the demographic and phenomenon being researcher. The priority would be to bracket these experiences in the early stages to ensure a more neutral and prioritized focus on the participants. According to Parsons (2008) “as an African-American female, the microsystem, mesosystem, and exosystem that make up [my] macrosystem will inform how [I] prioritize [my] research, so these will need to be further defined” (p. 1131). Jupp and Slattery (2010) state, “teachers are certainly biased against certain children, especially if they do not know them, and are often surprised at the amount of intelligence and cultural awareness of minority children who have been raised in ‘the right way” (p. 206). Also, according to Briscoe (2005), the researcher will need to remember the definition and concept of othering “as the ascription of abnormality and inferiority is usually done in reference to positionality” (p. 31). The researcher comes from a low-income family and is a first-generation college student and was informed that higher education was the only ticket out of an impoverished upbringing. Due to the limited social capital available AP courses were taking in addition to working part-time to help pay family bills and was admitted to the Options through
Education program at Boston College. So, if any disadvantaged students that can achieve the same, underrepresented or not, via the benefits of this initiative is viewed as a positive.

Limitations

IPA may have the following limitations for the researcher. First, it may be too structured as this can be the case for some qualitative researchers given its highly structured approach (Creswell, 2013). Second, the researcher may find the data analysis process to be too abstract, given the strong foundation in broader philosophical assumptions (Creswell, 2013). Third, participants must be chosen carefully and given the narrow population it may be challenging to locate these participants (Creswell, 2013). Finally, the researcher may have challenges bracketing personal experiences since “interpretations of the data always incorporate the assumptions that the researcher brings to the topic” (Creswell, 2013, p. 83).

Summary

The research design for this qualitative study is focused on the best methodology needed explore and reveal the potential benefits of STEM bridge and retention programs for high achieving African-American men who are currently in the workforce. The IPA methodology was selected due to the focus on lived experiences and alignment with storytelling with the theoretical framework of CRT. The research design prioritizes identifying participants that fit the specific criterion but most importantly have experienced the same shared phenomenon – a college STEM bridge or retention program. Interviews would be conducted to collect data, and steps aligned with the IPA research methodology would be adhered to.
Chapter 4: Results

College STEM retention programs may serve as a potential solution to reduce unemployment rates and increase Master’s degree attainment rates, specifically among high-achieving African-American men in STEM. Minority populations in the United States continue to experience high rates of educational deficits and lower college graduation rates, and African Americans and Latinos represent the lowest shares of the STEM workforce at 3% according the US Department of Commerce. The overall research question guiding this inquiry is to determine what impact these programs have on African-American male employability, and what success factors are most critical to high achieving African-American first-generation students in order to increase their employability. This question is being asked in order to home in on the employment placement rates of existing college STEM bridge and retention programs, and if there’s the potential to fill any gaps.

The researchers experience with a bridge program was extremely helpful context to really relate more so to the participants, as well as the disadvantaged background of the researcher. It was like looking into a mirror. It was much easier to establish rapport with the participants as a result and focus on empathic listening. I briefly discussed my childhood, experience navigating a predominantly white institution, and experiences in the Options Through Education program at Boston College. As I listened to the participants, I continued to be overwhelmed with pride and respect as they walked me through their trials and tribulations, and their accomplishments – law school, home ownership, marriage, and entrepreneurial endeavors. I was also quite impressed with their substantial ability to remember all of the details from childhood through the IGNITE program, recalling key names, dates, and scenarios that impacted where they are today. Most
importantly I continued to be overwhelmed by their immediate drive to pay it forward and help their local communities in need.

Three participants were interviewed. The first participant is T’Challa – born and raised in New England, coming from a broken home who’s father was a drug dealer and ended up getting deported. Despite his challenges throughout his childhood he was very friendly, popular, and well liked by his peers. He encountered racism and bullying throughout but overcame this due to his grit and way with people –and ended up being voted most likely to succeed in high school. He fully leveraged his experiences and scholarship through IGNITE, despite some programmatic challenges. T’Challa has focused on making his life about paying it forward and is pursuing grants to fund his future entrepreneurial endeavors.

W’Kabi is the second participant and completed the IGNITE program around the same time as T’Challa. He is a war refugee, has 25 siblings, and grew up in the projects. His father recently passed away which caused great pain for him, but he remembers him fondly as being the provider for his family and by keeping him and his siblings out of trouble. W’Kabi had a hard time as he tried to catch up during his K-12 education, attending an affluent charter school partially due to his love and talent for soccer. This catching up didn’t stop when the IGNITE program started and he ended up having to pause for a year and take additional course work at a community college. Despite his need to catch up he returned after a year and hit the ground running, working hard on his BS in Biology and graduated with high marks. Out of a class of 150 he was one of three African-American men. Throughout his baccalaureate career he did service work abroad in Africa focusing on the Ebola crisis, which inspired his pivot from lab work to more direct patient care. He is currently working in biotech and will be starting his nursing degree.
Zuri was the third participant interviewed. He completed the IGNITE program with a more recent cohort and spoke to some of the programmatic improvements made. Zuri grew up in the projects in New York City, but benefited greatly from the No Child Left Behind initiative and was able to travel abroad during his K-12 education and access numerous resources, per the advisement of his second-grade teacher who has served as a mentor and friend throughout his entire life. He fully embraced the IGNITE program and leveraged his experiences to run a national black fraternity, study abroad, and focus on service-learning opportunities. These experiences led him to his current pathway of pursuing his law degree as a full-time student and working part-time as a legal intern. He remains connected to the IGNITE program participants and administrators, as most of them were invited to his wedding.

**Emergent Themes**

Presented below is a broad summary of emergent themes taken from the participant interviews that have been conducted as part of this research. The interpretive phenomenological methodology, in light of which this research was conducted and its data analyzed, relies heavily upon an examination of the actual perception of the study’s participants. Deep analysis of each comment, emotion, and “ah-hah” moment from the participant is required to understand the true meaning of the phenomena being described. This section will consistently feature quotes from participant interview transcripts. The use of numerous quotes within the analysis is essential to maintaining alignment of the chosen methodology.

Emergent themes are highlighted within four sections of the participants lived experiences discussed in each interview: childhood and K-12 experiences, experiences within the IGNITE program, the Northward experience for students of color, and career pathway navigation.
post-baccalaureate. Participant responses highlight impactful factors – both positive and negative – throughout their childhood, the IGNITE summer immersion program, their Northward experience overall, and after graduation. Throughout childhood, participants reflect on their disadvantaged upbringings, navigating K-12, and early indications of grit, goal-orientation, and being high achieving. With regard to the IGNITE bridge program experience overall, participants describe the key academic program structures, mentorship, and the social capital they were equipped with to navigate Northward as a student of color. Participants recall what it was like to navigate Northward University as not only a IGNITE program participant, but also as an African-American male. They benefited greatly from career pathway navigation as a result of experiential learning opportunities and extracurriculars and were open about the feelings of isolation and microaggressions they experienced, and potential IGNITE program limitations they encountered. Finally, they provided updates on their dynamic post-baccalaureate careers, including accomplishments, new goals, and how they stay connected to folks that helped them reach their achievements and how they plan to pay it forward. Participants expressed both positive and negative aspects of the IGNITE program and Northward University overall, focusing mostly on the positive aspects including financial benefits and those of numerous experiential learning opportunities which set them up for success in their post baccalaureate careers.

**Childhood and Family**

*Disadvantaged Upbringing.* All participants shared the fact that they grew up in poor, predominantly black neighborhoods (also referred to as “the projects”). Most participants had siblings, between two and upwards of 27 siblings. They also shared trauma across their families. T’Challa’s father was deported, with fights and home leading to a divorce. Zuri lost one of his
siblings, and W’Kabi had recently lost his father who was a substantial figure in his life. T’Challa and U appeared to have the most instability throughout their childhoods. W’Kabi recalls his experiences as a war refugee moving from one refugee camp to another in small groups or solo: “My family and I came here as a refugee, so I did most of my growing up with some of my siblings in a refugee camp…we literally grew up like [running away] from civil war.” All participants shared the fact that either their parents or themselves were immigrant. Zuri’s and J’s parents were immigrants – unfortunately T’Challa ’s father was deported.

Navigating K-12. Disadvantaged childhoods made navigating K-12 even more challenging. Fortunately, all participants were able to leverage external opportunities to propel them forward. T’Challa was admitted to a prestigious charter school and received substantial teacher support. Unfortunately, his high school lost their accreditation and he had a poor foundation with math and precalculus. He was able to participate in Upward bound which is how he found out about IGNITE. W’Kabi was behind between 5th and 7th grade due to moving constantly but was able to go to prep school due to his killer soccer skills. Zuri benefited from the No Child Left Behind initiative and while he attended local schools, he was able to participant in after school and summer programs through the YMCA and other organizations.

Exhibiting Factors of Grit, Goal-Orientation, and High Achieving. Despite enduring challenging upbringings, all participants exhibit strong levels of achievement, motivation, grit, and goal-orientation. W’Kabi took the time to go to community college before starting IGNITE in order to get caught up and fill the gaps in his education and saw his struggles and family as key motivators to persist. Zuri was consistently a top performer in his school and was frequently placed in advanced level courses. T’Challa had to find his own way to school due to the instability at home and used his likable personality to network and build relationships, so by the
time he was on his way to IGNITE he had his goals mapped out and what he hoped to accomplish throughout his time at Northward:

“I think we became friends because like my mom one day, I was just like, hey, like somebody else would bring you to school to work nights when you’re in class….I got into the course through him because he was doing it and it was like okay, if he’s my ride I have to kind of rock with him.”

Familial Support and Motivation. According to the ASHE Higher Education Report (2014), family has been identified as critical to the success of Black men in higher education. For example, “in a qualitative study of 50 Black students (24 of whom were men), Barnett (2004) found that participants’ families played a critical role in their success by decreasing stress and serving as an emotional outlet” (ASHE Higher Education Report, 2014, p. 79). While all participants could identify at least one family member that motivated them or at least encouraged them to go to college, W’Kabi really emphasized the close relationship he has with his family and how they helped propel him forward. He used to battle through the pain of being a war refugee by playing soccer with his siblings, which provides him with some happy childhood memories. He remembers his late father as keeping he and his siblings out of trouble, was challenging given that they lived in a disadvantaged neighborhood. His father as also the provider for their family and worked hard to make sure that they had the opportunity at “the American Dream.”

The upbringings of the participants are aligned with feelings of isolation and disadvantages that are highlighted often for African-American men. The next section will focus on what helped them succeed despite these aforementioned set backs and life challenges.
IGNITE Program Experience

*Academic Program Structures.* All participants referenced the following support structures: summer immersion with math and English courses, cohort model, tutoring, mentorship, scholarship, and housing. Zuri completed the program in the later stages of the program so as a result he recounts newer programmatic features such as developing a five-year plan, intrusive advising, and mandatory town hall meetings. There was a clear distinction in the experience within IGNITE between all participants, with Participants T’Challa and W’Kabi having more in common given the program was still in it’s first year or pilots stages. They unfortunately experienced challenges that are not uncommon in the pilot stages of a program of this nature.

*Mentorship and Social Capital.* All participants benefited greatly from mentorship opportunities, whether it be formal or information mentorship relationships. T’Challa benefited more so from informal mentorship relationships, using his natural networking ability to navigate the institution and organizations that he became affiliated with, which he was very proud of: “I would just like make my allies. No matter what they look like – I’m pretty good at people. So, I will just find those people.” The predominant mentors in his life included mentors through co-op, as well as departmental leaders at the institution. He also really found his professors to be very helpful at propelling him forward. He states that

“They were like award winning professors and would talk to me and give me fresh ideas even though it was very different from what I was doing, and they didn’t always understand but gave me the room and kind of validated me.”

Zuri benefited more from his second-grade teacher, who served as a mentor throughout his entire life. He also was matched with a mentor through the IGNITE program who would nudge him
along and make him push his thinking. W'Kabi was an outlier in the sense that since he started the program a year behind his cohort, he was not formally matched with a mentor and was often struggling to find someone to help him. He states that “I had to literally go out of my way, to find my own mentor. It was hard but I eventually found someone.” Eventually he built a relationship with his co-op advisor, a woman of color who understood his situation and background and as a result was able to empathize with him and provide better support. All participants benefited substantially from the IGNITE program advisor, a man of color well known to the program.

T’Challa mentioned that “he taught the math in a different way and was able to better grasp the math behind the math.” Across each participant, they all benefited greatly not just from having some form of a mentor throughout their lives, but a mentor who could identify with them – usually being a man or women of color.

As a result of subsequent support structures, intrusive advising, and mentorship, the participants reaped the benefits of social capital making it easier to navigate the institution. T’Challa was admitted to a charter school where he learned how to swim and was exposed to other opportunities giving him a stronger set of cultural and social capital. He also greatly appreciated and benefited from the etiquette classes included in the IGNITE summer immersion session and gave him the social capital he needed to navigate existing situations. He speaks with confidence as he talks about having a cheat code to college:

“'I felt like I had a cheat code to college because we had resources and relationships with people, and I would leverage those relationships to figure out how to get exactly what I wanted. I figured out exactly what it is I wanted to do and just like talked to the right people in the departments that I felt comfortable with. I've known them for a while and like that's not the normal college experience, especially not for first Gen.'

Zuri talks about how the IGNITE program made it so much easier to navigate the institution:
"So, before the other freshman came onto Northward's campus, we've already been there for a month and a half, know where everything is. We know our resources, we have the ability to go to the bookstore before the rush and get situation. That was definitely a confidence booster and making sure that you were prepared to be in a classroom sometimes with 100-120 students. In your classes you can easily get lost."

Zuri also mentions how his “IGNITE” family served as a key motivator for his persistence. This is not surprising given that the program is run in cohorts and there are substantial benefits associated with the cohort model.

In summation all participants benefited greatly from the mentorship and subsequent social capital they obtained throughout their K-12 experiences and IGNITE interventions, despite their challenging childhoods and gaps within their K-12 education. The acquisition of social capital continued as they were exposed to experiential learning opportunities.

Northward University as a Black Male in IGNITE

Career Pathway Navigation and Experiential Learning. All participants benefited significantly from the portfolio of experiential learning opportunities that they had available to them. This included cooperative education, service learning, and study abroad opportunities – most of which for these participants was also service-oriented. These experiences had a significant impact on their ability to navigate their career pathways, both within and outside of STEM.

T’Challa was already well on his way to knowing what he wanted to do and what he didn’t want to do throughout his K-12 experiences. He knew that he had a passion for the arts and enjoyed mentoring and tutoring others – including his fellow IGNITE peers. He continued to tutor well beyond the IGNITE summer immersion program, while working at the campus gym as well. As he became more involved on campus, he worked for an on campus traditionally black
magazine and media organization, where we served as a graphic design apprentice benefiting from one of the team members taking him under their wing. He also had the unique opportunity through this role to interview some of his favorite rappers at the time. By the time he was approaching the end of his baccalaureate career, he had completed an international co-op in Japan, completed social enterprise work in Cape Town, and worked with a variety of non-profits – both good and bad. This gave him a sense of pride as he reflected on not being able to travel as a child like everyone else – he views these experiences as finally allowing him to catch up if not surpass his peers. T’Challa states the fact that "a lot of people you meet or people I've dated or people who went to NU their families take them abroad when they are young they have those experiences...I didn't go until I was 20, but after that I traveled so much more than them through 2014.” He also was proud of the fact that he was able to customize his education and spend the majority of his final baccalaureate years outside of the classroom. This has led him to where he is today, working for a youth organization as Acting Manager of Studio Programs which supports over 86 kids in NYC. While this was a riskier move for him and he took a pay cut as a result, he knows that this is his final step before working towards launching his own company and becoming an entrepreneur. In fact, he sees this opportunity as analogous to the IGNITE program in that it provides him with a cheat code to assist with his future endeavors.

"I have a friend who got into this organization and has like 100 K of support. I look at it as like IGNITE and that like they give you a cheat code. I meet all these people, get this money and you get this network. There’s no way that I would have met the people I’ve met if I didn’t go."

He is currently working with a woman of color who is serving as a mentor to him who will potentially recommend him for a competitive fellowship which he needs to fund his future organization. He didn’t even realize his passion for social enterprise until he knew how to articulate it. The trip to Cape Town may have given him the “ah-hah” moment to help him better
understand what he wanted to do and put words to it, as he says "the stuff that I was designing, things I wanted to do was actually social enterprise but I didn't have the words for it."

W’Kabi had a bit of a different and more challenge time navigating his career pathway. He is also the only participant in this study that was enrolled in and graduate from a STEM program and remains employed in STEM. His initial desire to pursue a career in biology was somewhat transactional. He initially was focused on playing soccer throughout his K-12 education. He mentions that if he had more guidance during the earlier stages of IGNITE, he may not have even selected biology as a career pathway. Despite his challenges, he participated in a robust selection of cooperative educational opportunities, including HIV programming in South Africa, Pfizer, and helped with training community health workers during the Ebola crisis in Liberia. He is currently employed as a mental health worker and has plans to start nursing school. His experiential learning opportunities helped him understand that he prefers more hands on or clinical work as opposed to research or lab focused work which has less interaction with patients and people.

Zuri new early on that he had a preference for liberal arts over STEM. The IGNITE program aligned him with a substantial amount of experiential learning opportunities, since throughout his experience co-op opportunities were easier to access due to IGNITE alumni and program connections. The IGNITE program started implementing a five-year plan pitch proposal to the program administrators and mentors as a requirement throughout the summer immersion. This served as the career pathway and academic backbone for IGNITE participants throughout their baccalaureate careers. As a result of this support, he was able to participate in a Dialogue of Civilizations course in Brazil and Geneva, which was a tremendously rewarding experience for him as he has a passion for different languages, cultures, and foods. He states that his co-op
experiences provided building blocks on his resume towards law school. These co-op experiences also showed him that while he likes politics, he has no desire to become a politician.

*Experiential Learning Opportunities and Social Capital.* Experiential learning opportunities for all participants had benefits beyond guidance with career pathways. These experiences also provided candidates coming from deficit backgrounds with critical social capital they would need to navigate existing and future career goals and professional scenarios. T’Challa seemed to be more aware of his increasing social capital and used every opportunity to use what resources he had available to him to tap into resources he needed to accomplish his goals. Throughout his time at Northward he:

> “figured out exactly what it is that [he] wanted to do and just talked to the right people in the departments that [he] felt comfortable with. [He had] know them for a while and like that’s not the normal college experience, especially not for a first gen” (T’Challa).

T’Challa also exhibits confidence and a sense of accomplishment as he starts to expand his experiential learning opportunities, from on campus opportunities to cooperative education experiences in New York, to finally studying abroad in Cape Town doing social enterprise work. This social capital obtained of being worldly and well-traveled after leaving the country for the first time made him realize and reflect on the following:

> “A lot of people you meet or people I’ve dated who went to Northward, their families take them abroad when they are young, they have those experiences…I didn’t go until I was 20, but after that I traveled so much [more than] them through 2014”

T’Challa was aware of his gap in social capital here. While other Northward students were used to traveling abroad with their families, he never had that opportunity since this was his first time leaving the country. But now he feels as though he has “caught up” to his peers on traveling and
international competency—if not exceed them—giving him a tremendous sense of pride especially given his disadvantaged upbringing.

T’Challa also speaks about numerous university administrators who helped him harness more social capital. For example, his supervisor and professor within the General Studies program is where he had the opportunity to write one of the best papers in the class and ended up winning the First Year Writing Award because of the opportunity. This paper later inspired his name for his new business. Another example includes his co-op advisor, who frequently told him about all of the internal departmental opportunities he could leverage which helped him to better define and customize his academic experience.

While W’Kabi had a much harder time gaining social capital due to his initial limited access to an on-campus mentor, he did benefit greatly from the IGNITE program administrator as well as his co-op advisor who ended up serving as his mentor. W’Kabi reflects on this stating that he “had to go literally out of [his] way to find [his] own mentor. It was hard but eventually [he] found someone.” Both mentors were administrators of color who he cited as understanding where he was coming from and his life, they helped him with his schedule, provide high touch academic support, and gave him “tough love” by pushing him along as he pursued co-op opportunities. This was crucial for him since he states that people in other schools had an easier time getting co-ops (in business, etc.) but for him he had to work for a non-profit or have a personal connection to an opportunity. W’Kabi also benefited greatly from social capital he obtained as he continued to successfully complete more prestigious and competitive co-op opportunities. He supports this by stating that “one successful co-op led to more.”

Zuri benefited from social capital through experiential learning opportunities early on and throughout his K-12 experience, in which he traveled a broad through a YMCA summer
program. While at Northward he benefited greatly from the social capital that the IGNITE program provided him with throughout his undergraduate experiential learning experiences. For Zuri co-ops were much easier to access due to IGNITE alumni and other program connections. IGNITE students were also asked to participate in mandatory town hall meetings with all participants. This usually included both networking and educational opportunities that helped reinforce their experiences inside and outside of the classroom at Northward.

For Zuri the co-op experiences not only helped him navigate his career pathway but also contributed to the success he experiences in his post-baccalaureate career. He says:

"I kind of had an ability to test the waters a little bit at Northward and build those relationships. One of my recommenders for law school was my supervisor at the law firm I worked on as a co-op. All of that stems back down to IGNITE." (Zuri)

He also reflects on the social capital deficit his family had as it relates to his ultimate career pathway. Co-op experiences provided him with the network and experiences he needed to navigate his post-baccalaureate career, where if he hadn’t had these opportunities, he may have been less successful. According to Zuri:

"I would say [co-op] introduced me to that career because I don't have lawyers in the family. We don't have professionals that really give you an introduction. My parents were like 'go to school, go to school, go to school' but go to school and then do what? That was never part of the conversation - they just knew going to school would get you somewhere that was better than that they had." (Zuri)

**Benefits of Extracurriculars.** T’Challa also obtained social capital through his experience with Onyx on campus, which was a magazine focused on music. During his time with Onyx he was able to serve as an apprentice to the graphic designer who took the time to teach him the fundamentals of graphic design. He was clearly moved by this as he says “That was huge, right?
Like he didn’t have to do that. He came back specifically to show me how to learn it and I became like the graphic designer for the entire magazine” (T’Challa).

W’Kabi participated in the African Student Association – he enjoyed this, and it helped him meet people where they were “all on the same page.” One member was an engineering major and they were always in the library together, which most likely contributed greatly to success for them both being men of color in STEM at a predominantly white institution.

T’Challa benefited the most from leading his fraternity at a national level. While enjoying traveling across the country for free, he also mastered business competencies by managing budgets and leading the company similar to a corporate board from his point of view. He also had to learn how to manage his time between the fraternity, work, and school, and also build and develop strong communication and project management skills.

W’Kabi joined the Latino student group on campus and went to the Dominican Republic every spring break to build schools for Haitian communities. He also was an active participant in the African Student Association.

Microaggressions and Isolation. All participants shared the unfortunate experience of both microaggressions and feelings of isolation throughout their K-12 and undergraduate experiences at a predominantly white institution. What tended to make their experiences easier to handle was finding students and people who could identify with them. Participants J and U seemed to suffer the most from microaggressions with T’Challa being subjected to hair tests and bullying throughout his K-12 experience, while W’Kabi dealt with microaggressions due to his athletic abilities and growing up as a war refugee. Both referenced very poor experiences with high school guidance counselors.
T’Challa experienced some slight isolation due to being an IGNITE participant, where his life story was on full blast and people knew who he was which made him uncomfortable at times. Some even were resentful of IGNITE participants because people “everyone thought they could be you” and identify with the personal stories of the participants. And if he wasn’t dealing with that, he was learning how to live in proximity with predominantly white students. He states that “it’s cool it’s communal, but not everyone was cut from the same cloth.” He also had some challenges with his on-campus music magazine, where the priority for focus seemed to be predominantly on “White music” as opposed to urban music mostly due to the fact that from the participant’s standpoint that they couldn’t identify with it. This frustrated the participant especially due to the fact that the magazine used to be a black station in the 80s. T’Challa experienced isolation outside of IGNITE, even with other men of color. He stated that he majority of the men of color outside of IGNITE were either athletes from the south, on a full ride or were African expats from families with money. He found this to be a strange duality and identified more overall with the athletes but didn’t really end up getting along with them despite having similar origin stories. He reflects on the fact that he recalls some students of color having tenured faculty on campus or parents that were famous, when he states that “it was different because you realize that like I’ve never been in an environment where I met like middle class black people” (T’Challa).

T’Challa seemingly continues to struggle with feelings of isolation despite how much he has accomplished throughout the years no matter is disadvantaged upbringing. He says that “he knows and has experienced the cold hard world and that life never let’s you forget that you’re alone.” Referencing the black social class again, he reflects on being a man of color with no debt,
loans, and being a homeowner and how he varies from his generation. He still seemed to not know what class he currently belongs to as he states the following:

“Like right here right now I own a home, but I’m considered I guess middle class. I’m straddling I guess…I was going to say lower middle class. But like I don’t know. It’s weird because you’re still like, you still feel like at a certain place.”

W’Kabi (from his perception) was admitted to a competitive charter school due to his soccer abilities and not for his academics which he struggled with greatly throughout his K-12 experience. Most students at the charter school within his grade were ahead of him and he views the primary reason they kept him enrolled was due to his athletic abilities. Throughout his education he participated in a lot of tutoring sessions and preparatory courses at community college to try and catch up. He did not have as much guidance when he was enrolled at Northward due to his being a first-generation college student. He referenced “the family dining room table” and how more affluent families would have had these discussions where he did not.

T’Challa actually seemed to feel quite isolated from the IGNITE program overall due to his negative experiences with housing and enrollment issues cited in the next section. Despite this he was able to reduce his feelings of isolation by being proactive and finding mentors who understood where he was coming from and his upbringings. He was also fortunate enough to find peers and students who identified with his background, which is apparent when he talks about Northward being a wealthy school where “the students of color come from the same background…everyone else struggled and it was always the same…trying to find a mentor, someone to reach out or don’t want to be able to help you out” (W’Kabi).

W’Kabi experienced isolation as a student of color enrolled in STEM at a predominantly white institution. He states that he was one of three black students out of 150 students who
majored in and graduated in biology. He goes on to say that “in my class as far as I remember there were only two students of color, one was my friend—he actually went through a bit of as struggle especially when trying to get a co-op” (W’Kabi). Zuri experienced isolation similar to that of W’Kabi, when he states “I think maybe I had a little easier road, but I think as for classes sometimes you were one of three black people in a large lecture classroom. So being able to find your voice, I think that’s something that we all have gone through” (Zuri). As cited previously, Zuri’s leadership in a Black national fraternity helped him to network nationally across other branches with other men of color, potentially reducing his overall feelings of isolation.

**IGNITE Program Limitations.** T’Challa and U seemed to also endure the same programmatic challenges with the IGNITE program across a variety of spectrums, including donor relations and expectations, on campus housing, and program administrators. I found them both to be hesitant to bad mouth the program but could tell as both were in the first and second cohorts of the program that the IGNITE program was “not prepared to deal with the housing issues, depression, etc. and some people didn’t make it” (T’Challa). T’Challa was empathetic with the fact that Northward runs like a business and he knew that his unofficial role was to serve as a “poster child” to showcase the program to donors. But as T’Challa warmed up he became more open about his feelings about the program. For example, he stopped prioritizing “highly encouraged” events with IGNITE donors and started focusing his time elsewhere. He also didn’t feel as though the mentor he was matched with made sense and found that he got more out of his informal mentorship relationships. The event with the IGNITE program that seemed to have the most significant negative impact on T’Challa was when he decided to study abroad for co-op, and they made him pay for off campus housing since he missed the on-campus deadline. This upset him greatly since he ended up having to take out loans:
“Like I’m a local kid – you are going to make me take out a loan when I have this scholarship?” (T’Challa).

Finally, as discussed in the aforementioned section, his story was put out for public display which made him feel slightly uncomfortable – everyone not only knew he was an IGNITE scholar but also knew his life story. In summation T’Challa was able to compare the IGNITE program to some nonprofits that he’s experienced, especially for those that serve low income students, who exhibit “a lack of preparation, student attrition, family issues, and emotional issues” (T’Challa).

W’Kabi was far less candid about challenges he experienced throughout the IGNITE program and kept citing how thankful he was for the scholarship. As discussed in aforementioned sections, W’Kabi had to take a gap year and defer his IGNITE scholarship and enroll in community college courses, due to the fact that he did not perform well throughout the IGNTE summer immersion. He states that he “still felt isolated from other people who started IGNITE earlier” and that if he had been matched with a mentor and received more career help, he may not have even pursued biology if he had more guidance.

Zuri generally seemed to have positive experiences with the IGNITE program but did mention that it would have been helpful to have more support at the post-baccalaureate level in relationship to job searching, career counseling, and other areas addressed in the five-year plan that the program required students create and present during their first year. He talks about this gap by stating the following:

“Maybe you’ve thought about your five-year plan, but there isn’t much conversation on, ok, you’re about to graduate, are you going out to work or helping you find the job or going back [to school] for whatever. There isn’t much of a formal program or career counseling that I would say [IGNITE] offers in and of itself.”
All participants embraced their experiences throughout the IGNITE program and undergraduate education, focusing predominantly on experiential learning opportunities and extracurricular activities focused on people of color. These experiences as well as their high levels of achievement and grit helped them navigate more challenging situations, while also helping them clarify their desired career pathways and build their social capital and networks. This is crucial for the persistence and retention of African-American men, especially those enrolled in STEM degree programs. The next section focuses on how they applied their education, career experiences, and social capital towards their post-baccalaureate careers.

**Post-Baccalaureate Experiences**

*Financial Wellness.* All participants benefited from the IGNITE program providing a scholarship and repeatedly expressed their gratitude for the funding and subsequent financial freedom it gave them well beyond the completion of the program. T’Challa thanks the program for the fact that he is a homeowner by stating the following:

“Like I’m a homeowner now and that’s because of, you know, when you don’t come out with crippling student debt, you’re free in a lot of ways…I feel like I’m more stable. Not having student debt created all of this stability for me…and I was the kid doing unpaid co-ops for the NYC council” (T’Challa).

He compares his experiences throughout IGNITE and through today to “pole vaulting up the socioeconomic ladder” (T’Challa). Zuri mentions that IGNITE provided not only a support system but a lack of financial worry as well, since program resources included books, food, housing, allowing for them to not have to worry about moving off campus like other peers of color did.
Paying it Forward. All three participants completed some sort of community service, volunteer work, tutoring, or service learning throughout their IGNITE program experience and beyond. T’Challa started working with high schoolers to pay it forward, which he seems to value greatly and understands the impact:

“Like just sharing our stories is valuable because they need something to model themselves after...people have done it and like you don’t even have to just, you just showing them like we came from really the mud, like really disadvantaged situations...it is possible for you to succeed” (T’Challa)

W’Kabi is using his opportunity as a participant in this study to pay it forward, since he hasn’t opened up to anyone about the program and his experience throughout, despite being asked. He hopes that his story can be used for good, especially for other students of color at Northward.

Zuri completed community service while traveling abroad to Brazil, Peru, and the Czech Republic during a YMCA summer program during his K-12 education. This gave him an entirely different perspective on poverty as well as a better understanding of basic needs and healthcare from a more global perspective. Throughout IGNITE, participants were required to complete 100 hours of community service per year. Zuri volunteered at LEAD working with BPH students on college applications. He happily accepted this opportunity, stating that “being someone who is just fortunate enough to receive a scholarship, I wanted to make sure that we were trying to pay it forward” (Zuri). he needed up seeing these same students that he helped get admitted into the IGNITE program and graduate from it.

All participants have gone on to be very successful in their post-baccalaureate careers and continue to not only excel in their careers but are also adamant about helping others. The next section will focus on final conclusions and findings and what next steps should be considered to
magnify the impact of bridge and retention programs for low-income high-achieving African-American men.
Chapter 5: Summary, Conclusions, and Recommendations

Summary

College STEM retention programs may serve as a potential solution to reduce unemployment rates and increase master’s degree attainment rates, specifically among high-achieving African-American men in STEM. Minority populations in the United States continue to experience high rates of educational deficits and lower college graduation rates, and African Americans and Latinos represent the lowest shares of the STEM workforce at 3% according the US Department of Commerce. The overall research question guiding this inquiry was to determine what impact these programs have on African-American male employability, and what success factors are most critical to high achieving African-American first-generation students in order to increase their employability. This question is being asked in order to home in on the employment placement rates of existing college STEM bridge and retention programs, and if there’s the potential to fill any gaps.

Participants were selected based on high-achieving African-American men who are currently employed or enrolled as full-time students, who had all experienced the same phenomenon—the completion of a college STEM bridge or retention program. The site selection criteria focused on STEM bridge and retention programs offered at private four-year institutions that offer these programs. Criteria for this group of participants was as follows: African-American; male; low-income; first-generation college students; graduated from and obtained their Bachelor of Science (BS) or Bachelor of Arts (BA) degree; are currently employed full-time (as a student or employee); and are no younger than 25. The shared phenomenon that they all experienced was the completion of the IGNITE college bridge program, at Northward
University which is a private four-year research institution. This criterion was important for the following reasons. First, the researcher wanted to ensure that the group was as homogeneous as possible, which includes an assumed shared social capital deficit. Second, the goal was to look at a population who is currently employed or in school full-time, preferably in STEM, to see if there are any key attributes of the bridge or retention program that impacted their employment status. The minimum age of 25 was key as the goal was to look at participants who have had some time after graduation to navigate their career pathway—the assumption is that this takes some time post-graduation. Finally, the preference was to interview participants who reside in Massachusetts or at least New England, as it would be easier to conduct more in-depth research in person.

Interviews were conducted with participants by the researcher to collect data. The interviews were around 45-60 minutes long. The interviews were predominantly virtual interviews, all one-on-one. The preference was virtual or in person interviews to start given that telephone interviews limit the researcher’s ability to see information communication and body language of the subject (Creswell, 2013). BlueJeans was used, given its ability to record video as well, given that “IPA is also committed to the use of verbatim transcript data” (Larkin et al., 2011, p. 322). Temi was also used as a transcription application to allow for the researcher to focus on the interview protocols and the body language exhibited by the participant, as opposed to focusing on collecting an accurate transcription. For the data analysis process, an interpretive phenomenological analysis was conducted. As a result, the researcher was focused on capturing the lived experience throughout the phenomenon – IGNITE—that all the participants shared. Themes associated with previously identified success factors such as mentorship and social capital, as well as attributes associated with experiential learning were used classify the
Qualitative data. Dedoose was used to code interviews and visually map codes to one another to help with alignment as opposed to just colors or text.

Major findings focused on overlapping positive shared experiences due to the IGNITE program, despite their shared disadvantaged upbringings and feelings of isolation throughout their baccalaureate experiences at a PWI. First, all participants benefited greatly from their varied experiential learning opportunities, which included working and studying abroad, service learning, and cooperative education experiences. Each participant was able to identify multiple key moments that helped to shape their career pathways and contributed significantly to their current successes – law school, nursing school, and entrepreneurial endeavors. Second, all participants benefited greatly from the IGNITE program scholarship, which continued to contribute greatly to their current financial freedom of not having student debt and allowing for them to focus less on resource scarcity throughout their baccalaureate career. Each participant was able to identify current successes – home ownership, weddings, graduate school, and entrepreneurship—that were due to the fact that they all had little to no student loans upon graduation. The third and most surprising finding to the researcher that contributed to the subsequent social capital and experiential learning opportunities of the participants included the extracurricular activities that all participants completed. These activities, focused on networking with students and administrators like themselves, helped to reduce isolation at a PWI and expand their networks with the black community.

In relationship to the research questions, they have been addressed as a result of the findings. College STEM bridge and retention programs do potentially have a positive impact on African-American male employability, as all completers interviewed were either employed full time or were enrolled in a master’s level program and working part-time. Key success attributes
were identified in the literature review and supported as a result of the findings. New and more specific success factors were identified, including a portfolio of experiential learning opportunities as well as the impact of extracurricular activities in culture clubs on reduced isolation and additional social capital.

**Interpretation of Findings**

Critical Race Theory (CRT) was somewhat useful in analyzing the data, specifically across two of the seven tenets. The first is that racism is normal in America and is part of our society. This was consistent across all participants, highlighting experiences such as the “hair test” and assumptions about athletic abilities and stereotype threat as a result. The second is that CRT theorists inject their own experiential knowledge into the study. This was helpful for the researcher to bracket their own experiences as a STEM degree-seeker from a low-income first-generation family completing a bridge program at a Predominantly White Institution (PWI). This experience was drawn upon when asking probing questions with participants, which provided a greater level of empathy and led to a more candid discussion. The third and fourth are that not only have Whites have been the predominant beneficiaries of civil rights legislation but questioning the legislation as well. This is not explicit but alluded to in the early stages of the program, where program participants were asked to serve as “showcase” examples of the institution’s investment in the community to donors, and while it was mandatory it was not at all beneficial to the program participants. In fact, it exposed their personal stories to the point where people they didn’t even know knew their stories and upbringings. The fifth is that whiteness is property, drawing upon white privilege. The one-size-fits-all approach was potentially used with study abroad and housing deadline policies, isolating those IGNITE students who chose to take advantage of a study abroad experiential opportunity at the consequence of their tardiness.
Instead of being sensitive to their socioeconomic status, they were held to the same requirements as all students at the PWI leaving the students homeless and on their own.

As the IGNITE program got off the ground, it was apparently that programmatic assessments had been completed and program changes were made. The first two participants in this study were from the first and second cohorts, while the third was from a few years after the program had been established. Key programmatic challenges were cited for the most part by these initial participants, who experienced significant challenges with housing, timing, and studying abroad. Some program administrators were also cited as being unhelpful and lacking sensitivity to the situation of the students. Finally, the donor relationships were pushed heavily throughout, but seemed to relax with future cohorts and focus more on what was mutually beneficial to the students. Even one of the participants saw the analogies between non-profits focused on low-income and diverse populations and the growing pains of the IGNITE program.

Bridge and retention programs need to be sure to assess programs to make sure it isn’t causing or triggering feelings of isolation and resource scarcity, especially when the ultimate goal of these programs is to reduce and eliminate those feelings. The IGNITE program made improvements throughout the years, such as having students create and present their five-year plan to their “board of advisors” or faculty and matched mentor. Donors were leveraged more so to connect students to experiential learning opportunities as opposed to framing IGNITE students as “poster children” to showcase to donors and alumni. New program administrators were put in place as needed, and those who were initially having an impact stayed throughout the years – focusing mostly on hiring faculty and administrators of color to reduce isolation and serve as role models and mentors.
Another key aspect included the substantial impact that experiential learning opportunities had across all participants. We know that experiential learning is beneficial to all students. The most notorious innovations pertaining to experiential learning that have been developed to address the gaps and lack of diversity in STEM include “various types of active learning and design projects, service learning, bridge programs, learning communities, and other approaches to integrated interdisciplinary curricula” (Dowd, 2012, p. 121). But as we look across studying abroad, cooperative education, internships, apprenticeships, and service learning there may be an exponential benefit to completing a portfolio of experiential learning opportunities—especially for at-risk populations. A portfolio of experiential learning opportunities may serve as critical to the ultimate success and career path navigation for at-risk participants. All participants were exposed the portfolio of experiential learning at Northward University, but some were fixed versus variable requirements. For example, service learning was fixed or required for all IGNITE participants, all participants benefited from it in the same way – the notion of “paying it forward.” They were able to identify not only the advantage that the program was able to give them, but that others like themselves needed to see them be successful and serve as role models and coach others in need just as they were coached. Service learning encourages engagement with the community in order to apply the experiences to the real world (Coulter-Kern, Coulter-Kern, Schenkel, Walker, & Fogle, 2013). According to Coulter-Kern, et al. (2013), “students who participate in service-learning experiences in courses indicated these classes were more academically challenging, and that they understood the course material better” (p. 307). More optional or variable experiential learning opportunities included cooperative education, studying and working or volunteering abroad, and apprenticeships. These experiences benefited the participants by exposing them to new cultures and ways of thinking within their desired career
pathways, providing them with a magnified amount of social capital obtained from their expanding network as a result, and finally the real-world experience that helped them determine if their desired career pathways were actually what they wanted, or not at all what they pictured. They benefit the student by prepping them to work in a global marketplace and could lead to an international leadership position (Vance, et al., 2013). They also provide them with more of a global network and international social capital resources as a result that they can cash in at a later date for a possible career opportunity (Vance, et al., 2013). As IGNITE scholars they could have chosen to not participant in these opportunities (keeping in mind that cooperative education may have been required for the student depending on the term of enrollment), all three scholars did and even had to suffer unintended consequences as a result. They were fortunately able to overcome and learn from these obstacles and the experimental learning opportunities maintained their value.

At-risk populations are most likely used to having to know how to survive. As these participants are war refugees, come from broken homes, trauma, and financial hardships, they had to learn how to survive. But when programs such as IGNITE take away the need to worry about the majority of the financial hardships all participants had experienced, it’s like getting a free vacation to do and learn whatever you want. Participants did not have the added stress of needing to worry about how to help their parents pay the bills, when their next meal was going to be, or how they were going to get home from school. This study reminds us how critical the financial benefits of these programs continue to be, in addition to their programmatic structures. For example, for two participants, their housing was threatened one year, and it had a significant impact on them – reminding them that they are disadvantaged and isolated. Suddenly both were forced to fall back on survival techniques they learned when they were young and reminded of
the fact that they had a challenging upbringing as their insulated bubble was popped. They encountered rude and unhelpful administrators that were most likely not trained properly on how to work with these population and anticipate these situations. Programs should seek to actively train and research the psychology of growing up at-risk, to better anticipate the needs of the population. Having social workers on site and the ability to draw upon resources should something happen to participants is critical to avoid program attrition.

All participants cited mentorship as a critical attribute to their successes throughout their baccalaureate careers and for some even beforehand. Mentorship improves retention and graduation rates with academically at-risk African American students (Brittian, Sy, and Stokes, 2009; Igbo, I. N., Straker, K. C., Landson, M. J., Symes, L., Bernard, L. F., Hughes, L. A., & Carroll, T. L., 2011). This is because students who did participate in mentorship programs experienced “personal growth, motivation for success, emotional support, and academic support” (Brittian et al., 2009, p. 93). Mentorship relationships are also a source of providing the social capital resources needed to improve career trajectories for African American students (Brittian et al., 2009). All three participants benefited from mentorship, formal or informal. While mentorship continues to be a success factor for at-risk populations, the presence of a mentor is not enough—the ability for the mentor to empathize with the mentee is also critical. Otherwise, the participant may experience magnified feelings of isolation. For example, while all participants were matched with mentors (some more informally than others), most had to seek out their own connections in order to get the social capital and other resources that they needed. The mentors who seemed to be most aligned with participants included people who looked like them (people of color) and understood their upbringing and challenges. They also seemed to be the most well-versed in the areas of interest and desired career pathways for participants.
Extracurricular activities had a positive impact on all participants, mostly in the form of reducing isolation, building social capital, and informal apprenticeship opportunities. These extracurriculars were usually in the form of culture clubs or black fraternities, allowing for participants to networking with other people of color within a PWI. These networking opportunities were also cited as exposing participants to additional experiential learning opportunities that they may not have been able to find on their own. Zuri was able to leverage his leadership role in a national black fraternity which consisted not only of networking and leadership, but also managing budgets, project and time management, and strategy that he compares to running a board for a Fortune 500 company. Soccer served as a safe place for W’Kabi throughout his K-12 experience, helping him through hard times. Both T’Challa and W’kabi enjoyed participating in African and Caribbean culture clubs on campus, giving them an opportunity to networking with people from their cultural backgrounds. Freeman (1999) talks about how African Americans experience isolation at PWIs, where African Americans are rarely perceived as high achievers. As a result, when admitted to honors programs they experience even further isolation from other students of color (Freeman, 1999). Extracurriculars may be leveraged as a way to reduce this isolation, as demonstrated across all participants.

Limitations

This study had a few limitations, which were focused primarily on the limited pool of eligible participants. This required the researcher to take a nimble approach, focusing on opening up the criterion and planning for additional possible sites if recruitment was not moving forward productively. Going into the study the researcher anticipated that finding eligible participants would be the greatest challenge given the existing market data for this at-risk population. In order to combat this, all participants were given incentives in an effort to increase participation.
from a small sample pool. The first site was a post-baccalaureate STEM focused retention program at a private PWI in New England. After months of recruitment no viable participants raised their hands to participant. As a result the researcher had to switch her site location to another private PWI institution in New England, and focus more on a bridge program that included STEM graduates but was not solely focused on graduating STEM majors.

Given the additional recruitment challenges experienced at both sites, the decision was made to open up the criterion a bit more to include not just African-American men but any men of color who completed the program, whether or not they were born in the United States or not. Second, while one participant was a STEM completer and is employed in STEM, the other two were not STEM completers. Criterion was also modified to include not just full-time employment, but full-time degree enrollment as well – since both from the researcher’s standpoint are qualifiers for a successful post-baccalaureate career.

Another potential limitation is the fact that all participants completed the program at different times – T’Challa and W’Kabi were among the first cohorts and Zuri completed the program during a later cohort. While salient features of the program continued, T’Challa and W’Kabi experienced some of the program growing pains and more present donor relationships first hand. Zuri on the other hand benefited from the program improvements made over the years, including a five-year career pathway plan and leveraging the donor relations for more experiential learning opportunities. These inconsistencies throughout the program may have altered the shared phenomenon across participants to some degree. But overall the program remained consistent and just seemed to improve over the years, so the differentiation among participants is assumed to be minimal.
Finally, due to the researcher’s former affiliation with the institution, participants may have felt more guarded and were therefore less transparent when discussing the IGNITE program. However the researcher anticipated this throughout the data collection process and was sure to build into the script talking points focused on creating a “safe space” for candor and that none of their opinions on the program would be held against them and that their anonymity would be maintained. The researcher’s additional experience with a bridge program and as a former at-risk student helped to establish a common ground with participants which is believed to have contributed to their candor and willingness to participate.

Suggestions

The focus for persisting more at-risk populations need to do more to put the student at the center and building the programs out from there. Administrators should not expect to get the grant funding, hire a bunch a people, recruit the populations, and expect the work to be over. Programs and institutions say that they want to promote inclusivity, help at-risk students, but does that mean supporting their personal development as well as their academic and professional development? A program can provide as many resources as possible, but if the participant has or is currently enduring trauma. any forms of resource scarcity or continues to exist in an environment that increases isolation, the students will not persist. As participants discussed, the “bubble” provided by the IGNITE program was only temporary, and not consistent. The real world continued to remind them of their disadvantaged backgrounds, whether that was from watching their white peers outpace them in introductory classes, not having a safe home to return to during the summers or holidays, or not having the opportunity to talk about trauma endured from having a drug-dealing father deported, growing up as a war refugee, or growing up in the projects. Therefore it is critical to continue to assess the program by speaking with existing
participants and alums (not just for donations but to conduct program assessments), having trained social workers on staff, and finally by making an effort to reduce isolation by hiring staff and faculty of color and leveraging additional on campus resources to promote supporting students of color.

The second suggestion is to consider some sort of post-baccalaureate cooperative education opportunity or program so that the support focuses not just on the bridge from high school to college, but for a few months after college as well.

**Transformation as a Scholar Practitioner**

This research experience has been extremely challenging throughout the past five years but has made me have a greater respect for those researchers who have walked this path and successfully made it to the end and who continue to fight and advocate for change in education. It has also made me realize why getting programs like this right is so damn hard, given all of the attributes needed to put the student at the center as there are so many demographics and features tied to best practices. For example, the recommended success factors and CRT lens would have been different if it was White women in STEM, or Asian American men. Finally, it gave me an appreciation of how far we still need to go to build and scale these programs that are working but are not being scaled enough to even measure the impact. I hope that these findings and continued research drives the conversation forward and serves as a catalyst for change.

I also plan to focus on continuing the conversation and making an impact in order to contribute to these efforts. This includes getting this research initiative published and presented and exploring potential grant opportunities that would allow for more synergistic efforts across higher education and industry where the gap still remains. Some of these efforts could include
serving on boards for industry partners, advising them on how to be more inclusive specifically with men of color. Others could include collaborating with other like-minded scholar practitioners on the concept of mentorship and post-baccalaureate cooperative education models by formalizing these programs and measuring impacts from bachelor’s degree attainment through obtaining their first full-time role or enrollment in graduate school. A third way that I plan to make contributions is through my current work as a Learning and Development lead, serving as both an internal and external consultant working primarily with higher education clients to accelerate their efforts in this space. I will also be pursuing new part-time teaching opportunities by looking into other masters or doctoral educational programs. Finally, I will be looking into serving as a mentor for the Big Sister Association of Boston and other similar organizations in need.
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